



**PARK CITY COUNCIL MEETING
SUMMIT COUNTY, UTAH
May 5, 2022**

NOTICE OF HYBRID IN-PERSON AND ELECTRONIC MEETING: The Council of Park City, Utah, will hold a special meeting with an anchor location for public participation at the Marsac Municipal Building, City Council Chambers, 445 Marsac Avenue, Park City, Utah 84060 on May 5, 2022. Council members may participate in person or connect electronically by Zoom or phone. Members of the public may attend in person or participate electronically. Public comments will also be accepted virtually. To comment virtually, use eComment or raise your hand on Zoom. Written comments submitted before or during the meeting will be entered into the public record but will not be read aloud. For more information on attending virtually and to listen live, please go to www.parkcity.org.

CLOSED SESSION - 4:30 p.m.

To Discuss Property, Personnel, Litigation, and Advice of Counsel

WORK SESSION

4:45 p.m. - Discuss Quinn's Junction Park & Ride
[Quinn's Junction Park and Ride Staff Report](#)
[Exhibit A: Quinn's Fatal Flaws Analysis](#)
[Exhibit B: Quinn's Junction Final Traffic Impact Study](#)
[Exhibit C: Summit County Long Range Transportation Plan](#)

SPECIAL MEETING - 6:00 p.m.

I. ROLL CALL

II. COMMUNICATIONS AND DISCLOSURES FROM COUNCIL AND STAFF

Council Questions and Comments

Staff Communications Report

1. Water Outlook 2022
[Water Outlook 2022 Staff Report](#)
[Exhibit A: Conservation Program Infographic](#)

III. PUBLIC INPUT (ANY MATTER OF CITY BUSINESS NOT SCHEDULED ON THE AGENDA)

IV. CONSIDERATION OF MINUTES

1. Consideration to Approve the City Council Meeting Minutes from April 7, 2022
[April 7, 2022 Minutes](#)

V. CONSENT AGENDA

1. Request to Adopt Resolution 09-2022, a Resolution Proclaiming May 13, 2022 as Arbor Day and Celebrating Park City's 29th Anniversary as a Tree City USA Community
[Arbor Day Staff Report](#)

VI. OLD BUSINESS

1. Consideration to Adopt Ordinance No. 2022-11, An Ordinance of Park City Municipal Corporation Amending Volume I: Executive Summary: Policies and Objectives, Part 1 - Public Service Contracts in the Adjusted Budget for FY 2022 for Park City Municipal Corporation and its Related Agencies
(A) Public Hearing (B) Action
[Lite Deed Restrictions Staff Report](#)
[Exhibit A: PCMC Budget Policy Chapter 6 Live Park City](#)
[Exhibit B: Budget Amendment Ordinance](#)
2. Consideration to Authorize the City Manager to Execute a Construction Agreement with Wardell Brothers Construction to Construct the Quinn's Junction Park and Ride Project, in a Form Approved by the City Attorney, Not to Exceed \$3,452,472.30
(A) Public Input (B) Action
[Quinn's Junction Park and Ride Staff Report](#)
[Exhibit A: Project Location Map](#)
[Exhibit B: Bid Summary](#)
[Exhibit C: Quinn's Junction Park and Ride Wardell Brothers Bid](#)
[Exhibit D: Draft Construction Agreement](#)
[Exhibit E: Quinn's Park and Ride Evaluation](#)
3. Consideration to Authorize the City Manager to Execute Two Professional Services Agreements, in Forms Approved by the City Attorney, with Wall Consultant Group. Inc. in an amount Not to Exceed \$175,771.19 for Quinn's Junction Park & Ride Site Improvements and \$100,720.63 for the Park Avenue Bus Stop Site Improvements
(A) Public Input (B) Action
[Quinn's Park & Ride and Park Avenue Bus Shelter Contracts Staff Report](#)
[Exhibit A: Project Location Map - Quinn's Park and Ride](#)
[Exhibit B: Project Location Map - Park Avenue Bus Stop](#)
[Exhibit C: WCG Proposal](#)
[Exhibit D: DRAFT Design Professional Service Agreement](#)

VII. NEW BUSINESS

1. Discuss Revision and Replacement of PCMC Procurement Policy
(A) Public Input
[PCMC Procurement Policy Staff Report](#)
[Exhibit A: Procurement Policy](#)

VIII. ADJOURNMENT

A majority of City Council members may meet socially after the meeting. If so, the location will be announced by the Mayor. City business will not be conducted. Pursuant to the Americans with Disabilities Act, individuals needing special accommodations during the meeting should notify the City Recorder at 435-615-5007 at least 24 hours prior to the meeting.

***Parking is available at no charge for Council meeting attendees who park in the China Bridge parking structure.**

Council Agenda Item Report

Meeting Date: May 5, 2022

Submitted by: Michelle Kellogg

Submitting Department: Engineering

Item Type: Work Session

Agenda Section: WORK SESSION

Subject:

4:45 p.m. - Discuss Quinn's Junction Park & Ride

Suggested Action:

Attachments:

[Quinn's Junction Park and Ride Staff Report](#)

[Exhibit A: Quinn's Fatal Flaws Analysis](#)

[Exhibit B: Quinn's Junction Final Traffic Impact Study](#)

[Exhibit C: Summit County Long Range Transportation Plan](#)

City Council Staff Report



Subject: Quinn's Junction Regional Park and Ride
Author: John Robertson, Gabe Shields, City Engineering
Julia Collins, Transportation Planning Manager
Department: Engineering
Date: May 5, 2022
Type of Item: Workshop

Executive Summary

On April 28, 2022, the City Council requested the Quinn's Project Team return at the next City Council Meeting to facilitate additional discussion and deliberations on the proposed park and ride facility. In addition, several questions were raised at the previous meeting that the Project Team has attempted to summarize below at length.

Though this Project is not a silver bullet to resolve community traffic and congestion, there are several reasons we continue to believe a regional parking facility outside town and at a very conspicuous location is a worthwhile community transportation investment.

The City Council asked for more information regarding the budget and Federal grant funding, Traffic Impact Study, Fatal Flaw Analysis, and Summit County's historical involvement. In essence – why was the location chosen over others, how will the Project impact the regional intersection, recap the Federal and local grants used to fund the Project, and explain the inclusive planning, design, granting, and analysis process.

Analysis

Project Budget (Capital/Operational) Summary

The budget for the Phase 1 of the Quinn's Junction Park and Ride (Project) is shown in Table 1. The Project includes the placement of asphalt, curb and gutter, landscaping, fencing, electric bus chargers, lighting, signage/stripping, car/bike charging stations, and water/wastewater piping.

Table 1 Project Budget

Project Revenue & Budget	Amount	Funding Source
Grant 2018 - 5311 Capital	\$2,569,880	Federal Transit Administration (FTA)
Grant 2019 - 5311 Capital	\$1,281,052	Federal Transit Administration (FTA)
Summit County Transportation Grant	\$405,000	Council of Governments (COG) 3 rd Quarter Transportation Tax
Transportation Fund/Transit Sales Tax	\$962,733	Park City
Total Revenue	\$5,218,665	
Project Costs	Planned	Actual Cost to Date
Prelim Eng/Studies/Construction Documents	\$498,714	\$429,381
Fiber optic relocations	\$126,183	\$126,183
Project Management Services	\$40,293	\$29,599
Construction Management	\$178,000	
Construction & Contingency	\$4,375,000	
Total Project Costs	\$5,218,190	\$585,792

The Project Team's Council presentation on March 31, 2022, noted that construction costs would be higher than initially estimated within the Fatal Flaw Analysis (FFA). The FFA did not include chargers for electric bus stations and was prepared before inflationary increases in construction materials, supplies, and labor.

Project Revenue and budget:

- 2017 – PC Transit awarded a competitive 5311 Capital grant from Federal Transit Administration (FTA) for \$2,569,880 for park and ride facility.
 - Funds were available to spend in 2018 and have been held in abeyance for Park City instead of reallocation to other unfunded requests.
 - Project Team provides progress updates regularly (design, engineering, utility) to maintain funding and ensure funds not redirected.
- 2018 – PC Transit awarded another 5311 Capital grant from FTA for park and ride facility for \$1,281,052.
 - Funds were available to spend in 2019 and held in abeyance for Park City.
- Total FTA Federal grant funding is \$3,850,932.
- 2019 – \$405,000 was awarded from the Summit County Transportation Sales Tax revenue grant process.
 - A jointly revenue stream enacted by SC and PCMC. We estimate 50% or more of the total tax is derived from within municipal boundaries.
 - Summit County is very collaborative in awarding funding to forward-thinking transportation projects inside and outside of Park City that benefit the entire County.

If the Project does not move forward, Park City is responsible to pay back all associated expenditures eligible under the FTA grant, or under our 80% formulaic grant. Given that FTA and UDOT authorized "pre-award authority" for expenses on 7/1/21, remaining expenses are billed to the grant and reimbursed at an 80/20 ratio. The \$405,000 awarded by the Summit County COG for 3rd quarter funds was also spent prior to 7/1/21. Therefore, the 20% federal grant match will come from the Transportation fund/transit sales tax.

The financial assumptions and project alternatives were reviewed and approved by the FTA and UDOT. FTA and UDOT request reimbursement (we pay them back) for funds spent to date if the Project is canceled. Further, since the funds are well past standard grant-horizon, we cannot reallocate them to another capital project. We remain concerned about long-term implications for future Federal grants after holding money for Park City for so many years to return it.

As requested, Table 2 outlines estimated annual maintenance costs, such as snow removal, striping, crack sealing, sealcoating, and street sweeping. Maintenance tasks extend the life of the pavement and will be provided by multiple divisions within PCMC.

Table 2 Project Maintenance Schedule of Costs					
Item	Quantity	Cost ea.	Total cost	Frequency	Annual Maintenance
Snow Removal-Parking Lot SF	165,000	0.19394	\$32,000.10	Annually	32,000.10
Snow Removal-Walks-SF	11,442	0.655	\$7,494.51	Annually	7,494.51
Crack Seal Asphalt - SF	165,000	0.0488	\$8,052.00	10 Years	805.20
Pavement Sealcoat	165000	0.13	\$21,450.00	7 Years	3,064.29
2" Mill and Pave Asphalt-SF	165000	1.4	\$231,000	18 Years	12,833.33
Sweeping -SF	165000	0.00435	\$717.75	3 times Per Year	2,153.25
Curb and gutter -LF	5128	45	\$230,760	20 Years	11,538.00
Paint and stripping - LF	12,555	0.2	\$2,511.00	2 Years	1,255.50
Pavement Message-EA	13	180	\$2,340.00	5 Years	468.00
Concrete Walk- LF	11442	30	\$343,260	25 Years	13,730.40
Lighting- EA	24	4000	\$96,000.00	25 Years	3,840.00
Trash containers and servicing- EA	6	4	\$24.00	3 time Per Week (156)	3,744.00
Shelter-EA	1	1	\$6,000.00	Annually	6,000.00

Landscaping -SY	2,105	0.65	\$1,368.25	Annually	1,368.25
Irrigation -SY	2,105	0.52	\$1,094.60	Annually	1,094.60
Storm Drain-EA (Inlet box)	6	230	\$1,380.00	Annually	1,380.00
Signs and Wayfinding-EA	21	190	\$3,990.00	12 Years	332.50
Total					\$103,101.93

Project Second Phase FTA Grant Funding

Phase 2 will cover the installation of restrooms, modern bus shelters, a maintenance shed, and other customer service amenities and improvements. A grant for construction and engineering for Phase 2 was already secured from Summit County's 3rd quarter sales tax grant (\$1,800,000). Park City has a 20% local match of \$360,000 to secure the \$1.8M local grant available to spend in 2023.

Fatal Flaw Analysis (FFA)

In 2016, Summit County voters overwhelmingly approved raising the current sales tax rate to generate revenue for transportation-related improvements. Park City was tasked with identifying a location in the Quinn's Junction area, and Summit County had already identified the area proximate to Ecker Hill Middle School.

With UDOT and Summit County staff, PCMC obtained a consultant to conduct the FFA and recommend a preferred location. Three parcels were selected for analysis based upon ownership control, mostly PCMC owned or controlled, or a fellow public sector agency. Private properties were not deeply considered given the high land cost and time required to negotiate, conduct due diligence, purchase, and obtain ownership. Other PCMC parcels were not given much consideration either due to planned uses at the time of analysis, property covenants/restrictions, or they did not fit within the general location (intersection proximity).

- Option 1: Frontage Road (Old Highway 40) Site (Northeast corner)
- Option 2: Richardson Flat Site
- Option 3: UDOT Detention Basin Site (Southeast corner)

PCMC, UDOT, and Summit County staff participated in the FFA to evaluate the viability of each site, and review variables, including utility access, topography, environmental issues, and future land use. A Performance Criteria Matrix (PCM) scored three properties. The multi-agency committee selected three top priorities from the PCM: safety and security, accessibility/visibility (wayfinding), and connectivity (trail, road, transit).

Using the PCM, a group exercise was held with the multi-agency team to create a Site Evaluation Matrix and use professional judgment and experience, as well as the technical criteria, scored as follows:

- Option 1: Frontage Road (Old Highway 40) Site - 41

- Option 2: Richardson Flat Site - 17.5
- Option 3: UDOT Detention Basin Site - 34

Much has been said about the viability of the Richardson Flat site, a property leased by PCMC yet privately owned. Unfortunately, Richardson scored lowest in the top three priorities of connectivity, safety, and accessibility because it was the farthest from the US40/SR248 interchange. It is also privately owned, lies in a complex area to develop because of the soils which impact future improvements, and the property owner is entwined in the ongoing dispute over Hideout's annexation into Summit County. The UDOT detention basin was also not selected due to numerous environmental issues requiring considerable wetlands mitigation.

Transportation Impact Study (TIS)

The Project Team also conducted a TIS in 2021 to analyze the impacts on Old HWY 40. While professional traffic studies rely on assumptions, growth projects, and extrapolations of known data, the AECOM TIS was performed following UDOT, Summit County, and PCMC professional standards and input. The TIS openly acknowledged subdued traffic data during the study period (pandemic) and opted instead to utilize traffic counts from December 2016 and February 2017. The counts were calibrated to regionally appropriate UDOT traffic data and extrapolated to existing traffic suitable for the year 2021.

Following data collection, an analysis of origin and destination was performed to understand how directional traffic might grow with a new park and ride. Traffic impacts were modeled for traffic volumes in the years 2021 and 2026 to understand the performance of intersections in a constructed vs no-build scenario. Models were developed under three scenarios:

- Baseline - assumes utilization rates similar to Ecker Hill and 2% traffic growth forecast;
- Sensitivity analysis 1 - Assumes full utilization rates; and
- Sensitivity Analysis 2 - Assumes a large mixed-use development at Silver Creek

Sensitivity Analysis 1 was performed at the request of Summit County staff who properly sought to better understand traffic impacts if the park and ride were fully utilized shortly after completion. Sensitivity Analysis 2 was also performed at the request of Summit County staff in anticipation of a potentially large, mixed-use development contemplated for the Silver Creek area. Together, the multi-agency team desired to understand how statistically significant growth would impact the intersections in the study area and how the intersections perform when traffic exceeds the Summit County Travel Models provided by UDOT and Wasatch Front Regional Council.

As a result, the critical observation is that under all three scenarios, the intersection of SR248 and Old HWY 40 is in failing condition in 2026 with or without the construction of the Project. While baseline utilization and growth rates may be questioned for being too

low in the TIS, the intersection of SR248 and Old HWY 40 fails even under conservative assumptions.

Development and visitation growth in the Wasatch Back, alone, we believe, cause this intersection to fail in 2026, with or without the Project. We believe this is why Summit County is in the early stages of contemplating a road realignment in their Long-Range Transportation Plan. We hope to remain an important partner and potential contributor to that Plan.

The TIS provides the specific mitigation to relocate the intersection further east to allow for more turn storage and an opportunity to signalize an additional intersection. The relocation, though currently unfunded in the County's Long-Range Transportation Plan, is a project with regional significance, given it is one of only two entrances to Park City. Ongoing efforts between PCMC, Summit County, and UDOT will continue to focus on holistic solutions for SR 248. Many solutions will be required as we work collaboratively to reduce traffic and congestion by reducing the need to drive into Park City.

An excerpt is included below from a draft of a Summit County Long-Range Transportation Plan discussion held earlier this year (Exhibit D). Though only recently presented to the Summit County Council in conjunction with an impact fee analysis, the Project ranks fairly high, with a score of 30 (or ranked 7th) in importance. A relocation project of this magnitude requires intergovernmental collaboration between many of the same parties working on the planning, design, and funding for a potential new park and ride.

Table 2: Project Ranking

Grade separate Olympic Pkwy/Newpark Blvd at SR-224	38
Grade separate Ute Blvd at SR-224	38
Extend Landmark Dr	34
Landmark Dr widening	33
Bitner to Silver Creek new road	33
Upgrade Silver Creek Dr / Pace Frontage Rd roundabout to dual-lane roundabout	33
Realignment of Old Hwy 40 at SR-248	30
Silver Creek Drive widening	28
South Hoytsville Rd improvements	28
Sidepath in conjunction with Bitner to Silver Creek new road	27
New Old Ranch Rd Sidepath	27
Silver Summit Parkway Sidepath	26
SR-32 Pathway	25
McCleod Creek / Willow Creek Loop / East SR-224 Trail	25
Pace Frontage Road widening	22
Promontory Ranch Rd /Silver Creek Dr intersection improvements	22
SR-224 rail reconstruction (east side)	22
Rail Trail Pavement Upgrade	22
Blue Sky bridge to Rail Trail	22
Upgrade I-80 Pedestrian Bike Tunnel	20
Democrat Alley alignment and paving	15
Lower River Rd/South Willow Way intersection improvements	14
Weber Canyon Rd widening	12
Hallam Road extension	12

This ranking does not require the projects to be constructed in this order, but simply puts a ranking to the projects for importance. For example, if a project gets funding before another project or if an area is developing faster, a lower ranked project may be constructed prior to projects that were ranked higher.

Agency Involvement

Summit County Participation

Throughout Project development, Summit County Engineering, Public Works, Planning, and Transportation participated in the FFA, TIS, Grant award, and overall design. We value Summit County's expertise, collaboration, and feedback and acknowledge the difficult challenge of regionally significant transportation solutions. We know there is no single project or program without tradeoffs and various pros and cons. This Project is no different, and we understand our Project impacts Summit County and vice versa, and the Project does not improve the current conditions of the intersection.

Accordingly, Summit County staff expressed constructive concerns about the immediate impacts on service levels. We are also aware of serious concerns from at least two County Councilors based on comments at the last Joint City-County Council Meeting. We understand the comments in good faith, given the complexity of anticipated growth and development, potential intersection impacts, and the need for capital project prioritization and limited funding.

Finally, we were recently informed of a report from Fish and Wildlife that a rare flower exists in this corridor but have no further information at this time.

UDOT Participation

UDOT was a valuable partner throughout the Fatal Flaw Analysis, TIS, and project planning. UDOT proactively relocated a “No Access Line” (NAL) to allow the Project design to operate more efficiently. This action required UDOT to apply on their own to FHWA for a NAL relocation and subsequently obtain FHWA approval.

Additionally, UDOT and Park City executed a 40-year construction maintenance agreement to use UDOT’s property. Concerns were raised about a clause in our contract that allows UDOT to revoke use if a substantial safety hazard to traffic on US-40 results. To be clear, this is standard contractual language. The clause also allows the City to cure hazards within ninety (90) days or an agreed-upon timeline before any site removal. These are common engineering and contractual provisions, not something unique to this location or Project.

UDOT is in the process of analyzing the interchange for future improvements. Information should be available this Summer, and it will include the Project in its designs.

Transit Service to Park and Ride Lots

Baseline Quinn’s transit service is proposed for 20-minute service in peak winter and a 30-minute service off-peak winter. The cost is approximately \$1.8M-\$2.5annually and may be modified based on ridership, costs, and performance. The anticipated route: one route to Park City Base Area stopping at PC High School, A-fresh Market, and another route from Quinn’s to PC Hospital to Old Town then Deer Valley, or linking all of the stops in one route, which would be less expensive and require fewer buses but add longer travel times. We would conduct public engagement to ascertain general preferences and complete the Short Range Transit Plan to finalize routing.

At this point, High Valley Transit (HVT)does not propose using the Quinn’s park and ride initially, as only the 102 Gateway is routed along SR248. The route operates between the Francis City offices and the Old Town Transit Center, with intermediate stops at Deer Mountain, PC Hospital, PC High School, and along Kearns Blvd. HVT considers the 102 a lifeline service and is concerned, initially, that adding additional stops will add precious travel time on a route that already takes nearly 60 minutes. However, HVT staff has agreed to continue to work with Park City to determine whether any opportunities for realignment and service to Richardson Flat may exist and remain coordinated.

Richardson Flat Access

Much has been said about service to the Richardson Flat parking lot. The PC Transit team desires to create meaningful transit services, working hand in hand with HVT, to ensure public transit in the Wasatch Back is efficient and integrated. Over time, as growth and development increase levels of traffic and congestion, regional park and

rides create opportunities for express services, partnerships with major employers, and the potential for direct-contractual services with significant trip generators (resorts, hotels, Main Street, etc.). We can also use regional locations to mitigate construction impacts in residential neighborhoods and special events.

Given the number of spaces at Richardson (650), Council specifically asked about the potential to create a PC Transit pilot program servicing the Richardson Flat lot and PC Heights neighborhood (if the Project is canceled). PC Transit is studying a potential pilot program to service Richardson Flat as requested. We cannot run concurrent services (Quinn's and Richardson simultaneously) in the near term without a considerable budget adjustment (new funding, equipment, and labor).

PC Transit is confident we can provide, given time and adequate preparation, one of these routes next winter to enhance off-site parking opportunities. Given the inherent limitations of the Richardson Flat lot (environmental), we are also concerned about the potential inability to construct critical Phase 2 improvements (restrooms, shelter, bus charging stations, etc.) on land under so much speculation and turmoil.

In addition, PC Transit is close to finalizing its Short-Range Transit Plan, which also contemplates transit service expansion to the PC Heights neighborhood.

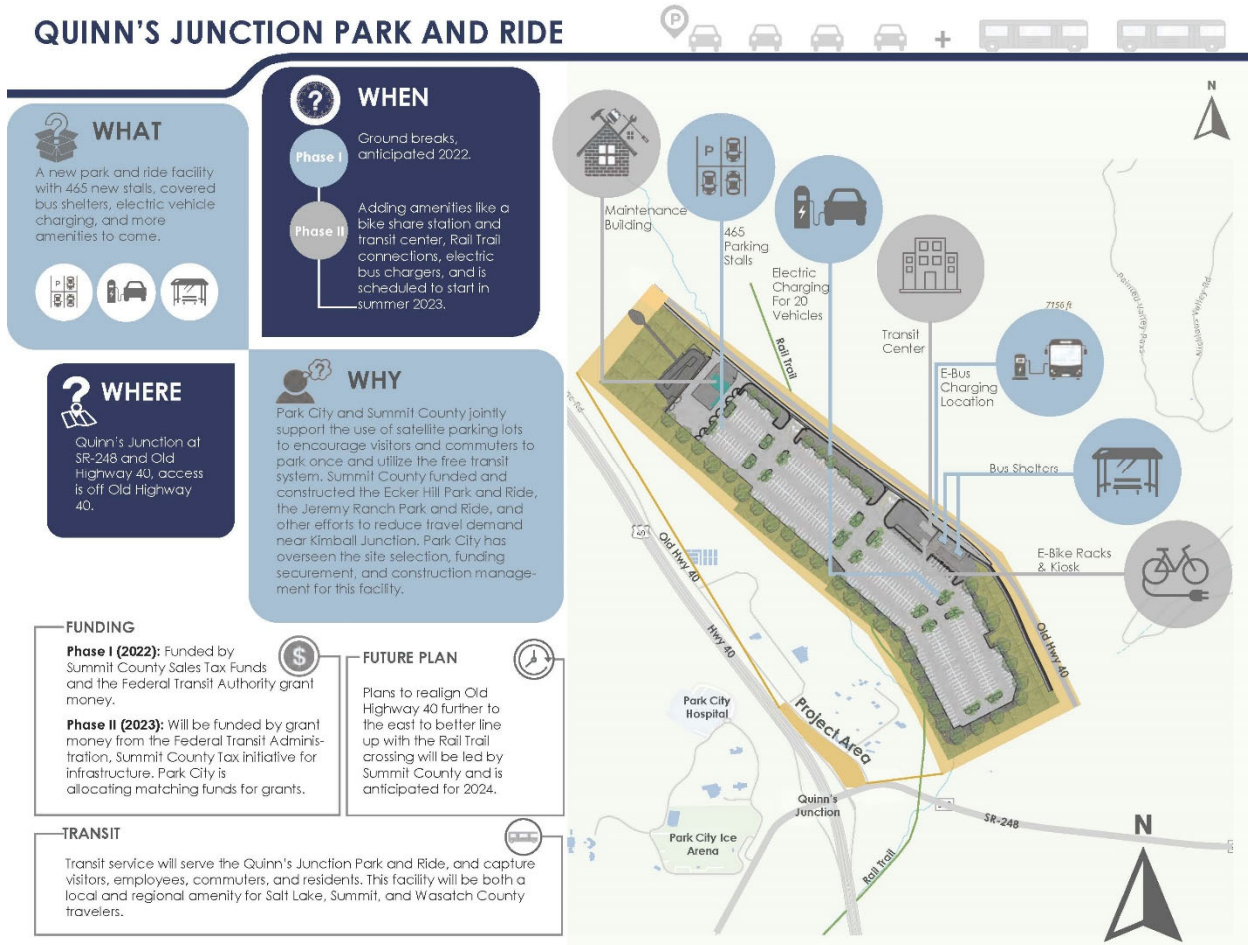
Contractors Bid & Construction Timeline

According to bid documents, received bids (unit prices, total costs, etc.) are good for 45 days from submittal or March 3, 2022. Forty-five days from March 3 is April 17. The contractor agreed to extend their bid another 30 days beyond April 17, placing a final decision date necessary by May 17.

The extension of the contract award date has created considerable uncertainty about finishing the Project by November 2022. Delaying the award date of the contract, all other typical contract efforts, such as obtaining bonding, permits from UDOT, ordering of materials, and mobilizing to the site, is pushed out, resulting in a start date that creates challenges to finishing the Project on time. Due to the delay, we anticipate that the Project will not be completed until early summer 2023.

We hope the lengthy staff report provides additional insight into the multi-year history behind the Project. We also tried to answer the many questions raised by City Council directly.

Project Location, Scope, and Phasing



Exhibits

Exhibit A: Fatal Flaw Analysis

Exhibit B: Traffic Impact Study

Exhibit C: Summit County Long Range Transportation Plan

Project name:
Quinn's Junction

From:
AECOM

Date:
August 7, 2019

To:
Julia Collins
Park City, UT

CC:
AECOM

Technical Memo

Memo

Subject: Site Evaluation for Park and Ride Facilities

Introduction

In the fall of 2016 Summit County voters overwhelmingly approved raising the current sales tax rate to generate revenue for transportation-related improvements. A portion of the approved funding is to address remote parking at multiple sites and has been determined to be part of the multimodal connectivity solutions to reduce congestion through 2040. Quinn's Junction was one of the sites identified and is the subject of this memo.

AECOM has been contracted by Park City, in partnership with UDOT and Summit County, to analyze and recommend a preferred site based off three parcel sites for a park and ride facility in the Quinn's Junction area. The Quinn's Junction Park & Ride is part of Park City's overall transportation demand management strategy and will provide connections both locally and regionally. Park and ride facilities reduce vehicle miles travelled and related traffic impacts during peak days and peak hours. The City's park and ride strategy is part of a regional transportation strategy with Summit County and adopted in Transportation Demand Management (TDM) plans. The project development team consists of individuals from Park City, Summit County, UDOT, and AECOM.

Purpose

The purpose of this memo is to provide information, document the analysis, and recommend the most viable option for a park and ride facility in the vicinity of US-40 and SR-248 that meets Park City, UDOT, and Summit County's goals. The goals include safety, accessibility, aesthetics, sustainability, and regional bus service. User groups that the park and ride may serve include providing parking for current bus services, potential future regional bus service, ride hailing, and carpooling into Park City for commuters, employees, access for recreationalists using the rail trail, event attendees, and general visitors.

As part of the evaluation the team identified and reviewed three potential sites, the Frontage Road (Old Highway 40) parcel, a UDOT detention basin parcel and an existing park and ride site, Richardson Flat Parking Lot; See site map figure 1 below. Each site was reviewed for opportunities and constraints such as, connectivity to Park City transit systems and nearby trails; bike/pedestrian movements, traffic circulation and flow for automobiles and buses; site conditions including environmental resources such as wetlands, surface water drainage, groundwater, mine waste impact restrictions due to CERCLA requirements, geotechnical conditions, visual impacts, historic resources and required permits, and mitigation.

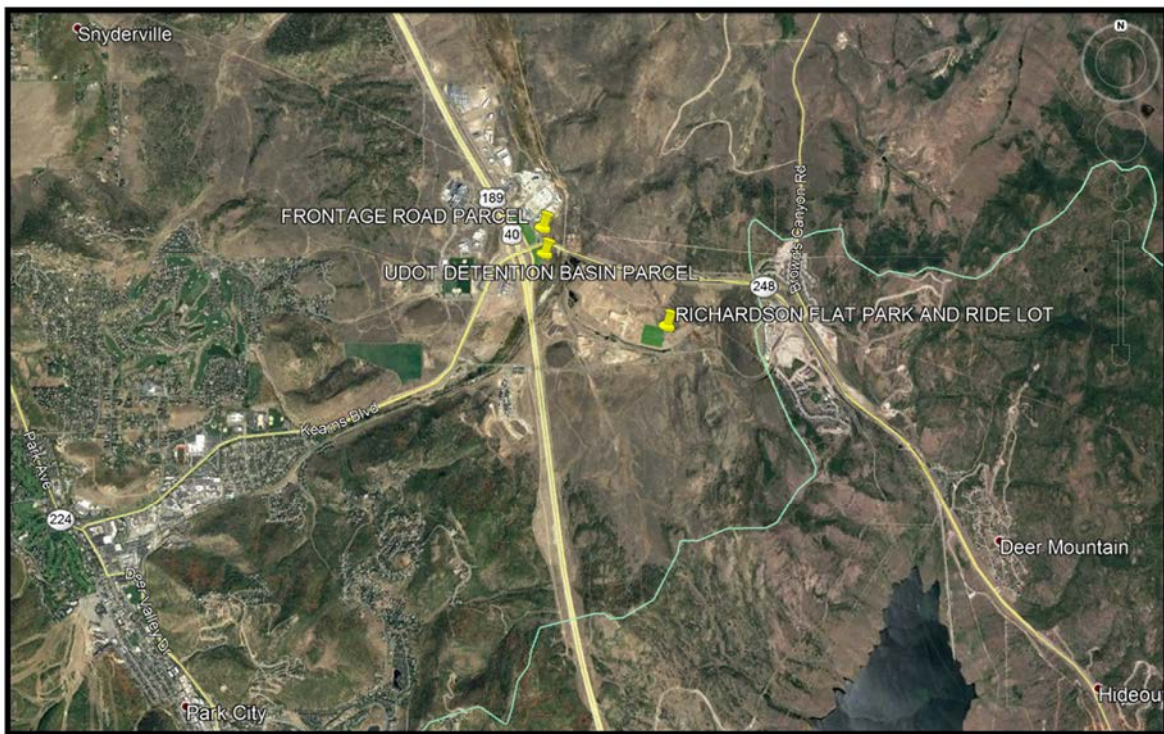


Figure 1- Site Map – (Source: Google Earth)

Performance Criteria Matrix

A stakeholders meeting was held with staff representatives from Summit County, UDOT, and Park City on May 20th, 2019 to discuss the goals and opportunities for the three parcels and work through a Performance Criteria Matrix exercise. The goal of the matrix was to assess a variety of conditions as they pertain to each site and the importance of each criterion based on local and regional transportation goals. Once the matrix exercise was complete it was used to analyze the three sites. The result of the matrix ranked and prioritized safety and security as the top priority, followed by accessibility/visibility (wayfinding) and connectivity (trail, road, transit) as second and third priorities, respectively. See Appendix A for the results of the Performance Criteria Matrix.

Analysis of three potential sites

Option 1: Frontage Road (Old Highway 40) Site

The Frontage Road (Old Highway 40) site is situated east of US Highway 40 and north of SR-248. The site is on a bluff and is accessible from Old Highway 40 from the east; see Figure 2 below. The site contains vegetation such as sagebrush and cheatgrass. An above ground powerline and buried fiber conduit run along the east and south side of the lot. It is anticipated that the lot could support approximately 500 stalls.



Figure 2 - Frontage Road (Old Highway 40) Site - (Source: Google Earth)

A conceptual site plan was developed showing access points, trail options, and updates to roadways surrounding the site; see Appendix C for Frontage Road (Old Highway 40) Site Layout.

The Frontage Road (Old Highway 40) site was reviewed for the following considerations:

- Safety and security at this location is ideal. The area is visible from US-40 and old Highway 40. However, the proposed lot would be situated on a bluff and likely will not be as visible from SR-248.
- Accessibility and wayfinding at this location is the best of all sites. It provides visual access from US-40. Users travelling on US-40 northbound and southbound will access the lot via Quinn's Junction Interchange. Increased traffic may impact queuing onto SR-248 and may require lane configuration changes.
- Connectivity to the Rail Trail would likely parallel Old Highway 40 and SR-248. A 5' wide sidewalk currently runs parallel to SR-248 however for trail connection, an increased width would be required. A trail would also be needed along Old Highway 40 where there is no current sidewalk. A signal may be needed in the future to facilitate ped/bike movements across Old Highway 40 as traffic volumes increase. The Kamas Commuter, line 11 operated by Park City, runs on SR-248 and would have easy access to the proposed lot. A proposed bus turnaround hammerhead north of the parking lot will allow the buses to turn around at the end-of-line without navigating through the parking lot and not have to deviate far from the existing route. With the parking lot being parallel to Old Highway 40, there are many opportunities for vehicular access.

UDOT has future intersection improvements planned for US-40 and SR-248 that may impact the site. If UDOT were to expand the lanes on the onramp from SR-248 the size of the parking lot may be impacted. If the configuration of the interchange is moved or altered, Old Highway 40 could be realigned as it reconnects to SR-248; this would be beneficial to the site as it would allow additional area for development.

Option 2: Richardson Flat Site

The Richardson Flat site is situated along Richardson Flat Road. Currently there is an existing park and ride lot with approximately 750 stalls; see figure 3 below. Accessing the site is not direct and requires users from US-40 to access the site by SR-248 (Kerns Boulevard) and then to Richardson Flat Road. An option to increase usability would be to construct a new roadway from SR-248 south to the site. If this option is chosen it would be challenged with conditions such as environmental, wetlands, groundwater, and a Comprehensive Environmental Response Compensation and Liability Act (CERCLA) boundary mitigation. Since the site is located within the Park City's Soil Ordinance Boundary, any disturbed soil failing Toxicity Characteristic Leaching Procedure (TCLP) testing thresholds will likely be hauled to a waste services company.



Figure 3 - Richardson Flat Park and Ride Lot- (Source: Google Earth)

A conceptual site plan was developed showing access points, trail options, connections, and updates to roadways surrounding the site; see Appendix C for the Richardson Flat Site Layout.

The Richardson Flat Park and Ride Lot was reviewed for the following considerations:

- Safety and security at this site is the worst of all three. Due to the isolation from major thoroughfares, there is greater opportunity for criminal activity. Although cameras are currently located around the lot, the isolation and visibility from major roadways makes this site unappealing for most users.
- Accessibility for users to the parking lot off Richardson Flat Road is not convenient. Users have two options to get to the site. The first option is to bypass the site along SR-248 to Jordanelle Parkway and then back track west via Richardson Flat Road. Second option is using Kearns Blvd (SR-248) and then turning east on Richardson Flat Road. Both access options are not direct and require the user to navigate a lengthy route to the site. Currently there are no way-finding signs to direct the users.

Direct access to the lot could be accomplished by creating a new interchange at Highway 40 and Richardson Flat road. UDOT would not likely approve a new interchange so close to the existing interchange at SR-248. If the new interchange was built, users would use it as a shorter route to access Park City.

A direct connection to SR-248 would reduce the travel distance from the US-40 interchange. To facilitate this new connection, a new road would be required and would be constructed through contaminated soils and wetlands. The

proposed roadway would run east from the current lot winding up the hill to the north and ultimately connect into SR-248. This would require deceleration, acceleration, and turning lanes on SR-248 to facilitate the new traffic movements.

To construct the roadway, environmental constraints would require a significant amount of time to resolve. Wetlands and contaminated soils surround the site, making expansion of the lot challenging due to the regulatory hurdles.

- Connectivity is not ideal. Regular transit currently does not serve the site; this would require an additional loop. An existing decommissioned railroad spur (Phoston) runs northwest to ultimately connect to The Rail Trail; this connection is lengthy and requires improvements. To accommodate bike riders and pedestrians travelling into Park City, Richardson Flat Road would require improvements. However, the underpass at US-40 would require widening due to it being too narrow.

Option 3: UDOT Detention Basin Site

The UDOT Detention Basin site is situated east of US Highway 40 and south of SR-248; see Figure 4 below. The site has the least amount of available acreage of all the sites that have been analyzed. The site contains an above ground wet detention basin and is surrounded by vegetation such as cheatgrass and sagebrush. It is anticipated that the lot could support a low number of stalls because of the small size and irregular shape.



Figure 4 - UDOT Detention Basin Site- (Source: Google Earth)

The UDOT Detention Basin Site was reviewed for the following considerations:

- Safety and security at this location is good; it is visible from US-40 and SR-248 but does not have commercial buildings nearby to provide additional eyes on the lot.
- Accessibility for this site is possible with a connection at the intersection of SR-248 and Old Highway 40, likely requiring a traffic signal. This intersection would not be ideal as it is too close to the existing interchange. Close proximity to the on/off ramp intersection is problematic and may require a relocation of the proposed intersection to the east. Access is reliant on UDOT's approval of relocating the NA line.
- Connectivity to the Rail Trail would be along the southern side of SR-248 and would require a trail south of the existing sidewalk. This proposed trail is situated so users do not have to cross any roadway intersections to get to the trail. Connectivity is ideal at this location.

A Bus pullout along SR-248 would not be possible. Bus service would require internal routing thus reducing parking volume and other amenities.

UDOT has future plans to increase traffic capacity by adding an additional lane within the northbound off ramp from Highway 40 to SR-248. This could reduce the amount of available land within the parcel. The parcel is bounded by wetlands to the east and south also constraining lot size and configuration. Future interchange improvements may affect the availability of this parcel.

The likelihood of using this ground for a park and ride is highly unlikely due to the close proximity of the driveway to the proposed lot to the existing US-40 interchange.

Site Evaluation Matrix

A group exercise involving The City and Summit County ranked each of the stakeholders' categories from the Performance Criteria Matrix on a scale of Baseline, Elevated, and Top Priority for each of the three potential sites. The result of the Performance Criteria Matrix ranked Connectivity (Trail, road, transit), safety and security, and Accessibility and visibility (wayfinding) as the top priorities and were assigned a 2 multiplier. The elevated priorities were utility access, sustainability, and aesthetics (architecture, landscaping, gateway, way finding, welcome center). That priority section was assigned a 1.5 multiplier. The baseline priorities from the Performance Criteria Matrix were cost, size (parking stall count); environmental impacts and public (perception/acceptance) were assigned a 1 multiplier.

After evaluating the three sites based on technical criteria, professional judgement and ranking them, Richardson Flat received **17.5 points**, UDOT Detention Basin Parcel received **34 points**, and Frontage Road Parcel (Old Highway 40) received **41 points**; See Table 1 – Site Evaluation Matrix below for the results.

Note: Rank: Good = 3 points, Fair = 2 points, Poor = 1 Point *Weighted Points Multiplier is derived from the Performance Criteria Matrix; Top Priorities receive a double multiplier; Medium Priorities receive a 1.5 multiplier and low Priorities get a 1.0 multiplier (no change)			QUINN'S JUNCTION SITE EVALUATION MATRIX					
			Richardson Flat Park and Ride		UDOT Detention Basin Parcel		Frontage Road Parcel (Old Highway 40)	
Results from the Performance Criteria Matrix	Performance Criteria Matrix Categories	Weighted* Points Multiplier	Rank	(Weighted Points Multiplier) * (Rank Points)	Rank	(Weighted Points Multiplier) * (Rank Points)	Rank	(Weighted Points Multiplier) * (Rank Points)
TOP PRIORITY	Connectivity (trail, road, transit)	2	Poor	2	Good	6	Good	6
	Safety and Security	2	Poor	2	Fair	4	Good	6
	Accessibility and visibility (wayfinding)	2	Poor	2	Good	6	Good	6
ELEVATED PRIORITY	Utility access (amenities)	1.5	Poor	1.5	Fair	3	Fair	3
	Sustainability	1.5	Poor	1.5	Good	4.5	Good	4.5
	Aesthetics (architecture, landscaping, gateway, way finding, welcome center)	1.5	Poor	1.5	Good	4.5	Good	4.5
BASELINE PRIORITY	Cost	1	Fair	2	NA	0	Good	3
	Size (parking stall count)	1	Good	3	Poor	1	Fair	2
	Environmental Impacts	1	Poor	1	Fair	2	Good	3
	Public (perception/acceptance)	1	Poor	1	Good	3	Good	3
Total Score				17.5		34		41

Table 1 - Site Evaluation Matrix

Fatal Flaws Analysis

A fatal flaws analysis was performed to evaluate the viability of each of the three sites. The analysis reviewed multiple variables including utility access, topography, availability of land, environmental and potential land use. In addition, the three top priorities from the Performance Criteria Matrix; safety and security, accessibility/visibility (wayfinding) and connectivity (trail, road, transit) were considered top priorities. As the fatal flaw exercise progressed it became evident the likelihood of obtaining the UDOT detention basin parcel as a future lot was not possible due to access, future plans for the intersection at SR-248 and the on/off ramps of Highway 40, environmental perimeter constraints, and lot size. It was determined by the City to cease furthering the consideration of the UDOT Detention Basin Parcel. See Appendix B for the Fatal Flaws Analysis.

Cost

Although cost was considered a baseline priority in the Performance Criteria Matrix the team created an opinion of probable cost for two of the three sites. A conceptual design was not created for the UDOT detention basin parcel thus cost could not be accurately accounted. The Frontage Road Parcel – 5 acre option was deemed to be the most cost effective option. Due to various environmental challenges and proposed roadway to access the Richardson Flat site it was determined to be the most expensive site to develop. See Appendix D for the Conceptual Cost Estimates.

Recommendation

After gathering stakeholder input for the Performance Matrix, producing the Site Evaluation Matrix, and generating a Fatal Flaws Analysis, the project team recommends **Option 1 – Frontage Road Parcel (Old Highway 40)** as the preferred site. The Frontage Road Parcel (Old Highway 40) excelled in all 3 performance matrix categories, Safety and Security, Accessibility and Wayfinding, and Connectivity. Although deemed not top priority criteria; Sustainability, Aesthetics (architecture, landscaping, gateway, way finding, welcome center), Cost, Environmental impacts and Public (perception/acceptance) all scored good for this site.

Appendix A – Performance Criteria Matrix

PERFORMANCE CRITERIA MATRIX											Quinn's Jct.	
											TOTAL	%
Cost	A	B	C	D	A	F	G	H	I	J	1.0	2.2
Size (parking stall count)		B	C	D	C	F	G	H	I	J	1.0	2.2
Environmental Impacts			C	D	E	F	G	H	I	J	3.0	6.7
Connectivity (trail, road, transit)				D	D	F	G	D	D	D	7.0	15.6
Public (perception/acceptance)					E	F	G	H	I	J	1.0	2.2
Safety and Security						F	F	F	F	F	9.0	20.0
Accessibility and visibility (wayfinding)							G	G	G	G	8.0	17.8
Utility access (amenities)								H	I	J	4.0	8.9
Sustainability (meet Regional goals)									I	I	6.0	13.3
Aesthetics (architecture, landscaping, gateway, way finding, welcome center)										J	5.0	11.1
Total											45.0	100

Appendix B – Fatal Flaws Analysis

Frontage Road (Old Highway 40) Parcel Fatal Flaws



- Safety and security at this location is ideal. The area is visible from US-40 and old Highway 40. However, the proposed lot would be situated on a bluff and likely won't be as visible from SR-248.
- Accessibility and wayfinding at this location is the best of all sites. It provides visual Access from US-40. Users travelling on US-40 north and south bound will access the lot via Quinn's Junction Interchange. Increased traffic may impact queuing onto SR-248 and may require lane configuration changes.
- Connectivity to the Rail Trail would likely parallel Old Highway 40 and SR-248. A 5' wide sidewalk currently runs parallel to SR-248 however for trail connection an increased width would be required. A signal may be needed in the future to facilitate ped/bike movements across Old Highway 40 as traffic volumes increase.
- Existing utilities on the site include power and communication. The site access may be restricted by utilities and could require relocation as the design progresses.

- The topography along the perimeter of the site is steep. The current conceptual layout of the site does not encroach into the steeper areas. Costs could escalate if the lot is to be built farther south since extensive grading and retaining walls would be required.
- UDOT has future intersection improvements planned for US-40 that may impact the site. If UDOT were to expand the lanes on the onramp from SR-248 the size of the parking lot may be impacted. In addition, if the configuration of the interchange is moved or altered drastically, Old Highway 40 could be realigned as it reconnects to SR-248; this would be beneficial to the site as it would allow additional area for development. At this time we do not have setbacks determined from UDOT for the onramp for US-40.

Richardson Flat Park n Ride Fatal Flaws



- Safety and Security at this site is the worst of all three. Due to the isolation from major thoroughfares there is greater opportunity for criminal activity. Although cameras are currently dotted around the lot, the isolation from major roadways and visibility makes this site unappealing for most users.
- Accessibility for users to the parking lot off Richardson Flat Road is not convenient. Users have two options to get to the site. The first option is to bypass the site along SR-248 to Jordanelle Parkway and then back track west via Richardson Flat Road. Second option is using Kearns Blvd via SR-248. Both access options are not direct and require the user to navigate a lengthy route to the site. Currently there are no way-finding signs to direct the users.

Direct access to the lot could be accomplished by creating a new interchange at Highway 40 and Richardson Flat road. UDOT would not approve a new interchange so close to the existing interchange at SR-248. If the new interchange was built users would use it as a shorter route to access Park City.

Connecting to SR-248 would be beneficial. To facilitate this new connection a new road would be required and would pass through contaminated soils and wetlands. The proposed roadway would run east from the current lot winding up the hill to the north and ultimately tie into SR-248. This would require deceleration, acceleration, and turning lanes to facilitate the new traffic movements.

To construct the roadway, environmental constraints would require a significant amount of time to resolve. The current land owner (United Park City Mines Co.) has proven to be difficult to work with in the past. Wetlands and contaminated soils surround the site thus making expansion of the lot challenging due to the regulatory hurdles.

- Connectivity is not ideal. Regular transit currently does not serve the site; this would require an additional loop. An existing railroad spur (Phoston) runs northwest to ultimately connect to The Rail Trail; this connection is lengthy and requires improvements. To accommodate users into Park City, Richardson Flat Road would require improvements for a more direct route.
- Water and sewer utilities are currently not available at the site or within close proximity. To provide restroom amenities, utilities would need to be provided at the site or alternative methods (i.e. well and latrine pit) could be utilized incurring increased maintenance.

UDOT Detention Basin Parcel Fatal Flaws

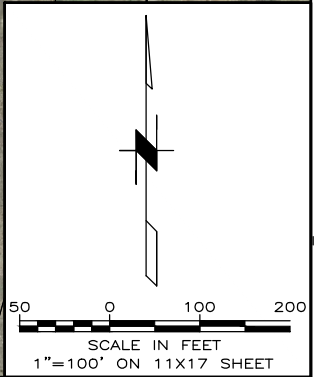


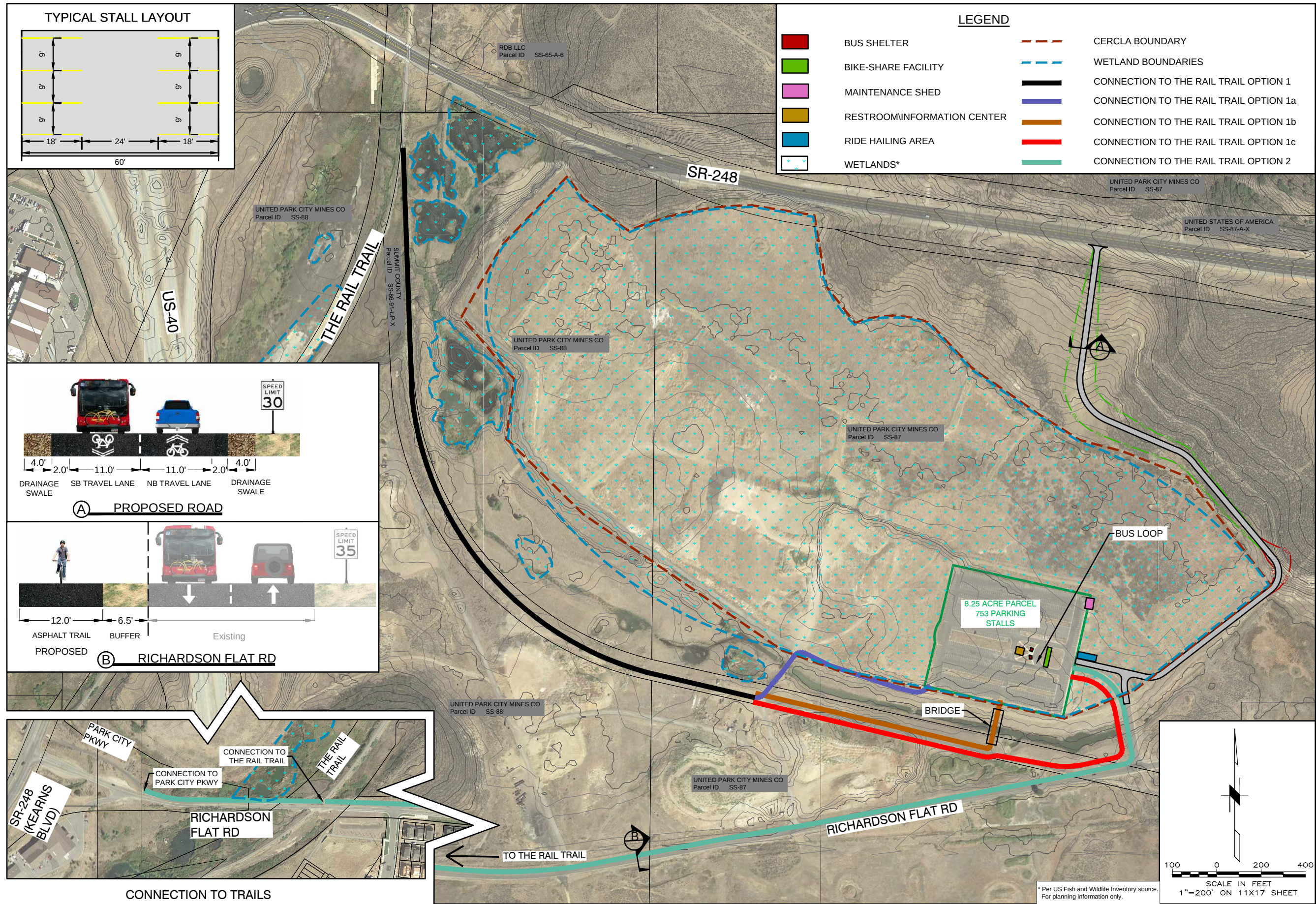
- Safety and security at this location is good. The area is visible from US-40 and SR-248.
- Accessibility for this site is possible with a connection at the intersection of SR-248 and Old Highway 40 likely requiring a traffic signal. This intersection would not be ideal as it is too close to the existing interchange. Close proximity to the on/off ramp intersection is problematic and may require a relocation of the proposed intersection to the east. Access is reliant on UDOT's approval of breaking the NA line.
- Connectivity to the rail trail would be along the southern side of SR-248 and would require a trail south of the existing sidewalk. This proposed trail is situated so users do not have to cross any roadway intersections to get to the trail. Connectivity is ideal at this location. Bus pullout along SR-248 would likely not be possible. Bus service would require internal routing thus reducing parking volume and other amenities.
- The UDOT detention basin could be re-configured to underground storage. This type of facility incurs long term maintenance and access issues. Alternatively the detention basin could be moved, relocation is unlikely due to a lack of a viable parcel.

- UDOT has future plans to increase traffic capacity by adding an additional lane within the northbound off ramp from Highway 40 to SR-248. This could reduce the amount of available land within the parcel. The parcel is bounded by wetlands to the east also constraining lot size and configuration. Future interchange improvements may affect the availability of this parcel.

Appendix C – Site Layouts







Appendix D – Conceptual Cost Estimate

**Quinn's Jct. Park and Ride
Conceptual Cost Estimate
Frontage Road Parcel - 3 Acres**

Description	Quantity	Unit	Unit Price	Total
Mobilization	1	Lump	6.0%	\$ 83,000.00
Traffic Control	1	Lump	2.0%	\$ 28,000.00
Landscaping	1	Lump	\$ 30,000.00	\$ 30,000.00
Parking Lot	141,000	sq ft	\$ 4.75	\$ 669,750.00
Trail Option 1 Connection to The Rail Trail	1,300	lf	\$ 38.00	\$ 49,400.00
Trail Connection to Park City Parkway	3,200	lf	\$ 38.00	\$ 121,600.00
Old Highway 40 Improvements	1	Lump	\$ 95,000.00	\$ 95,000.00
Bus Hammerhead Turnaround	1	Lump	\$ 66,000.00	\$ 66,000.00
Utilities	-	-	-	-
- Water	1,300	lf	\$ 60.00	\$ 78,000.00
- Sewer	700	lf	\$ 70.00	\$ 49,000.00
Bike-Share Facility	1	Lump	\$ 50,000.00	\$ 50,000.00
Bus Shelter	1	Lump	\$ 20,000.00	\$ 20,000.00
Restroom/Information Center	1	Lump	\$ 100,000.00	\$ 100,000.00
Maintenance Shed	1	Lump	\$ 10,000.00	\$ 10,000.00
Subtotal				\$ 1,449,750.00
Items Not Estimated* (30%)				\$ 434,925.00
CONSTRUCTION SUBTOTAL				\$ 1,885,000.00
12% CONTINGENCY				\$ 226,200.00
TOTAL PROJECT COST				\$ 2,112,000.00
Bridge with Trail Option 2 Connection to the Rail Trail	1	Lump	\$ 800,000.00	\$ 800,000.00
TOTAL PROJECT COST WITH OPTION				\$ 2,912,000.00

**Quinn's Jct. Park and Ride
Conceptual Cost Estimate
Frontage Road Parcel - 5 Acres**

Description	Quantity	Unit	Unit Price	Total
Mobilization	1	Lump	6.0%	\$ 154,000.00
Traffic Control	1	Lump	2.0%	\$ 52,000.00
Landscaping	1	Lump	\$ 50,000.00	\$ 50,000.00
Parking Lot	224,000	sq ft	\$ 4.75	\$ 1,064,000.00
Trail Option 1 Connection to The Rail Trail	1,300	lf	\$ 38.00	\$ 49,400.00
Trail Connection to Park City Parkway	3,200	lf	\$ 38.00	\$ 121,600.00
Old Highway 40 Improvements	1	Lump	\$ 95,000.00	\$ 95,000.00
Bus Hammerhead Turnaround	1	Lump	\$ 66,000.00	\$ 66,000.00
Utilities	-	-	-	-
- Water	1,300	lf	\$ 60.00	\$ 78,000.00
- Sewer	700	lf	\$ 70.00	\$ 49,000.00
Bike-Share Facility	1	Lump	\$ 50,000.00	\$ 50,000.00
Bus Shelter	1	Lump	\$ 20,000.00	\$ 20,000.00
Restroom/Information Center	1	Lump	\$ 100,000.00	\$ 100,000.00
Maintenance Shed	1	Lump	\$ 10,000.00	\$ 10,000.00
Subtotal				\$ 1,959,000.00
Items Not Estimated* (30%)				\$ 587,700.00
CONSTRUCTION SUBTOTAL				\$ 2,547,000.00
12% CONTINGENCY				\$ 305,640.00
TOTAL PROJECT COST				\$ 2,853,000.00
Bridge with Trail Option 2 Connection to the Rail Trail	1	Lump	\$ 800,000.00	\$ 800,000.00
TOTAL PROJECT COST WITH OPTION				\$ 3,653,000.00

**Quinn's Jct. Park and Ride
Conceptual Cost Estimate
Richardson Flat**

Description	Quantity	Unit	Unit Price	Total
Mobilization	1	Lump	6.0%	\$ 270,000.00
Traffic Control	1	Lump	2.0%	\$ 90,000.00
Landscaping	1	Lump	\$ 10,000.00	\$ 10,000.00
Proposed Road/SR-248 Improvements	4,930	lf	\$ 130.00	\$ 640,900.00
Trail	4,290	lf	\$ 38.00	\$ 163,020.00
Utilities	-	-	-	-
- Water	5,360	lf	\$ 60.00	\$ 321,600.00
- Sewer	5,360	lf	\$ 70.00	\$ 375,200.00
Bike-Share Facility	1	Lump	\$ 50,000.00	\$ 50,000.00
Bus Shelter	1	Lump	\$ 20,000.00	\$ 20,000.00
Restroom/Information Center	1	Lump	\$ 100,000.00	\$ 100,000.00
Maintenance Shed	1	Lump	\$ 10,000.00	\$ 10,000.00
Wetlands Mitigation	1	Lump	\$ 100,000.00	\$ 100,000.00
CERCLA Mitigation	1	Lump	\$ 300,000.00	\$ 300,000.00
Subtotal				\$ 2,450,720.00
Items Not Estimated (30%)*				\$ 735,216.00
CONSTRUCTION SUBTOTAL				\$ 3,186,000.00
12% CONTINGENCY				\$ 382,320.00
TOTAL PROJECT COST				\$ 3,569,000.00
Trail Option 1b	4,430	lf	\$ 34.00	\$ 150,620.00
Bridge	1	Lump	\$ 250,000.00	\$ 250,000.00
TOTAL PROJECT COST WITH (OPTION 1b)				\$ 3,805,000.00
Trail Option 1c	5,540	lf	\$ 34.00	\$ 188,360.00
TOTAL PROJECT COST WITH (OPTION 1c)				\$ 3,597,000.00
Trail Option 2	6,600	lf	\$ 44.00	\$ 290,400.00
TOTAL PROJECT COST WITH (OPTION 2)				\$ 3,711,000.00

Quinn's Junction Park and Ride

Traffic Impact Study

Prepared For:
Park City
February 17, 2021

Prepared By:
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Project # 60600697

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- A – Site Plan
- B – LOS Results
- C – Queuing Analysis

1.0 INTRODUCTION AND SUMMARY

1.1 Introduction

On behalf of Park City, AECOM has conducted this traffic impact study (TIS) for a proposed Park and Ride lot to be constructed on the north side of Kearns Boulevard, between Old Highway 40 and US-40. The purpose of this TIS is to evaluate the impacts of the Park and Ride facility on the surrounding roadway system. The affected intersections include the following:

- Four proposed accesses on Old Hwy 40
- Old Hwy 40 and Kearns Blvd (SR-248)
- Interchanges of Kearns Blvd (SR-248) and US-40 (northbound and southbound ramps)

1.2 Key Findings

This TIS examined the traffic expected to be generated by the proposed 460 parking-stall Park and Ride lot to be constructed on the north side of Kearns Boulevard, between Old Highway 40 and US-40 in Park City, Utah.

Site traffic was generated by comparing the ridership at the Ecker Hill Park and Ride facility with existing traffic counts on SR-224 and applying that ratio to traffic on US-248. New traffic was distributed based on the distance, direction, and relative size of major population centers. Background traffic growth was estimated at approximately 2% per year based on projections in the Summit Country Travel Model.

The signalized intersections in the study area are projected to operate at LOS D or better in all analyzed conditions. The unsignalized intersection of Old US-40 and Kearns Blvd is projected to operate at LOS F in future conditions with or without the additional traffic from the Park and Ride project. The queues of the left-turn movements between signalized US-40 Ramp interchanges are projected to exceed existing storage length capacity.

Based on these results, AECOM provides the following recommendations:

- Keep the Old Hwy 40 and Kearns Blvd intersection unsignalized.
- Consider providing side-by-side left-turn lanes underneath US-40 or provide dual left-turn lanes for the eastbound to northbound movement at the northbound ramps.
- Consider eliminating the permissive left-turn phase for the eastbound to northbound movement at the northbound ramps if deemed to be a safety concern.

A sensitivity analysis was also performed assuming the proposed Park and Ride facility is more fully utilized within the study horizon period. Results show a 95th percentile queue length closer to 250 to 300 feet. Since the existing spacing is only 250 feet, a queue longer than 150 feet (the approximate storage length) could block eastbound traffic.

Two potential mitigation measures include the following:

- Relocate the Old Highway 40 intersection approximately 150 feet to the east, and/or
- Signalize the intersection.

An additional sensitivity analysis of the study area accounted for a potential large mixed-use development near the Silver Creek Interchange. By 2026, this development is estimated to add approximately 500 and 800 vehicles per hour to Old Highway 40 in the AM and PM peak hours, respectively. This additional traffic is anticipated to further degrade the LOS at SR-248 and Old Highway 40 as well as at the US-40 interchange. This traffic will strengthen the need for signalizing and moving the Old Highway 40 intersection to the east. However, it should be noted that over 50% of traffic on Old Highway 40 would be heading to or from the proposed development near Silver Creek interchange, with only a small proportion heading to or from the proposed park and ride lot.

2.0 PROPOSED DEVELOPMENT SITE AND SURROUNDINGS

2.1 Site Location and Access

The proposed site is located between Old Hwy 40 and US-40, on the north side of Kearns Blvd (SR-248) (see site location in Figure 1). Old Hwy 40 is a two-lane road approximately 40 feet wide, consisting of two 12-foot lanes, a 10-foot shoulder on the northbound side, and a 6-foot shoulder on the southbound side. Atkinson Rd is an unmarked road 24 feet wide with gravel shoulders on both sides. The southbound approach of Old Hwy 40 to SR-248 is stop controlled.

SR-248 is a five-lane road 84 feet wide, including a median for left turn lanes, 12-foot shoulders, curb and gutter, and sidewalks on both sides. Each of the four US-40 ramps consist of two lanes approaching or departing SR-248, and both ramp terminal intersections are signalized.

Four new accesses will be constructed on Old Hwy 40, one of which will be aligned with Atkinson Road. Of these four new accesses, the two northern accesses will be reserved for buses and maintenance, while the southern two will be for private vehicles entering and exiting the site. The public parking area will not be connected to the bus turnaround and maintenance area in order to minimize disruptions to the bus circulation.

An approximate total of 460 parking stalls will be constructed, including multiple ADA stalls. Bike racks, E-Bike facilities, and electric car chargers will also be constructed. A bus pullout with shelters will be constructed on Old Hwy 40, between Atkinson Road and Kearns Blvd. A pedestrian crossing will be constructed at the intersection of Old Highway 40 and SR-248 where users will link the Park and Ride facility to the Historic Union Pacific Trail via an existing concrete sidewalk along SR-248. A site plan is shown in Appendix A.



Figure 1: Project Site Location

2.2 Existing Traffic Conditions

Due to lower traffic volumes during the 2020 Covid-19 pandemic, traffic counts for this study were obtained from previous counts. The first was *Existing & Future Transportation Conditions for SR-248*, completed by Fehr & Peers in 2018, which provided counts for the US-40 ramps completed in October 2017. The second was the *South Point Traffic Impact Study* from February 28, 2017, also completed by Fehr & Peers. This study provided counts for the intersection between Old Hwy 40 and SR-248, completed in December 2016.

Because the counts were completed during different months, the counts were balanced between US-40 and Old Hwy 40. Counts were adjusted to 2020 volumes based on a 1% per year growth rate calculated from data from a nearby UDOT continuous count station (CCS)¹.

A total of 5% trucks was assumed based on data from UDOT.²

Signal timing data for SR-248 were obtained from the UDOT Traffic Operations Center.

¹ CCS # 606 located on SR-248 approximately 0.5 miles west of US-40. Data obtained from 2017 through early 2020.

² UDOT Data Portal.

Existing (2020) traffic volume estimates are shown in Figure 2 and Figure 3 for the AM and PM peak hours, respectively.



Figure 2: Existing (2020) AM Peak Hour Volumes



Figure 3: Existing (2020) PM Peak Hour Volumes

2.3 Trip Generation

It is anticipated that the transit service to the Quinn's Junction Park and Ride will mirror the service to other recently opened park and ride facilities and that the ridership will also be similar to the ridership generated by these new facilities. The Ecker Hill Park and Ride, which opened in August 2018, was chosen for a specific comparison as it has 450 parking spaces and is served by two bus routes.

Ridership per hour figures for two separate weeks in January and February were provided by Park City. These figures were averaged between the two months to reduce the impacts of large events, such as the Sundance Film Festival. The morning and evening peak transit boardings and alightings were compared to the morning and evening peak traffic counts on SR-224. The results show that the AM peak hour is composed of 4.4% transit mode split and the PM peak hour is composed of 5.6% mode split. These assumptions fall in line with the *Park City and Summit County Short Range Transit Development Plan*, which also assumed at 5% mode share for transit based off current measurements of 4.9%.

A further assumption was made that 90% of these trips to the park and ride lot will be single-occupancy vehicles while 10% would involve carpools or drop-offs/pickups at the park and ride facility. Therefore, trip generation would increase by 10% in the opposite direction of the peak hour flow.

Applying these percentages to 2020 peak hour traffic flow on SR-248 west of US-40, the following peak hour trip generation volumes were calculated:

- AM Peak Hour:
 - Inbound: 59 vph
 - Outbound: 6 vph
 - Total: 65 vph
- PM Peak Hour:
 - Inbound: 9 vph
 - Outbound: 89 vph
 - Total: 98 vph

Although some recreational users may also use the lot, on typical weekday conditions, most trips are assumed to be employees heading into Park City to destinations with limited on-site parking. Based on information obtained from the city, businesses will be encouraged and, in some cases, required to limit employee parking at new and redeveloping sites. This Park and Ride facility would be one location where employees could park and take transit into the city.

2.4 Trip Distribution and Assignment

The proportion of trips arriving from each direction were estimated based on the distance to major population centers and the relative size of the population centers. It is assumed that most traffic to the park and ride facility will come from the north (Coalville), south (Heber), and east (Kamas). Some trips are anticipated to originate in the Salt Lake Valley, although most would likely use park and ride facilities in Kimball's junction. Trips from Kamas are not likely to be high since there is currently direct transit service from Kamas to Park City. Trip distribution was estimated as follows:

- North: 10%
- South: 85%
- East: 5%

New bus trips were assumed to be 6 trips inbound and 6 trips outbound during the peak hours, corresponding to 10-minute headways (a conservatively high assumption for frequency based on information from Park City). All buses are anticipated to enter from the west on SR-248, turning left at Old Highway 40 and entering at the northern end of the site. All exiting buses are anticipated to turn right from Old Highway 40 only westbound SR-248 towards Park City.

AM and PM Peak hour trip assignment is shown in Figure 4 and Figure 5, respectively.



Figure 4: AM Peak Hour Trip Assignment



Figure 5: PM Peak Hour Trip Assignment

3.0 TRAFFIC OPERATIONS ANALYSIS

Two construction projects are anticipated to alter the layout of the intersection between US-40 and Kearns Blvd by 2026. The first project will add a westbound bus-only lane on the north side of Kearns Blvd, and the second will extend the two-lane section of the northbound on-ramp up to the gore area of the ramp. Neither of these projects are anticipated to significantly alter performance of the Synchro models created for this project, and they are not reflected in the forecast figures.

3.1 Traffic Forecasts

Traffic forecasts were calculated based on data obtained from Version 1.0 of the Summit County Travel Model provided by WFRC and UDOT on the Utah Traffic Volume Map on-line tool.³ An estimated growth rate for the study area was calculated by averaging the anticipated growth between 2017 and 2050 on five roadway segments contained in the tool including US-40 north of SR-248, US-40 south of SR-248, SR-248 west of US-40, SR-248 east of US-40, and SR-248 between the US-40 ramps. The average growth rate was approximately 2% per year. This growth rate was applied to the AM and PM peak hour volumes to obtain 2021 and 2026 background traffic volumes as shown in Figure 6 through Figure 9.

Trip assignment was added to the background traffic volumes to obtain plus project traffic volumes for 2021 and 2026 as shown in Figure 10 through Figure 13.

³ <https://wfrc.org/traffic-volume-map/>



Figure 6: Future (2021) AM Peak Hour

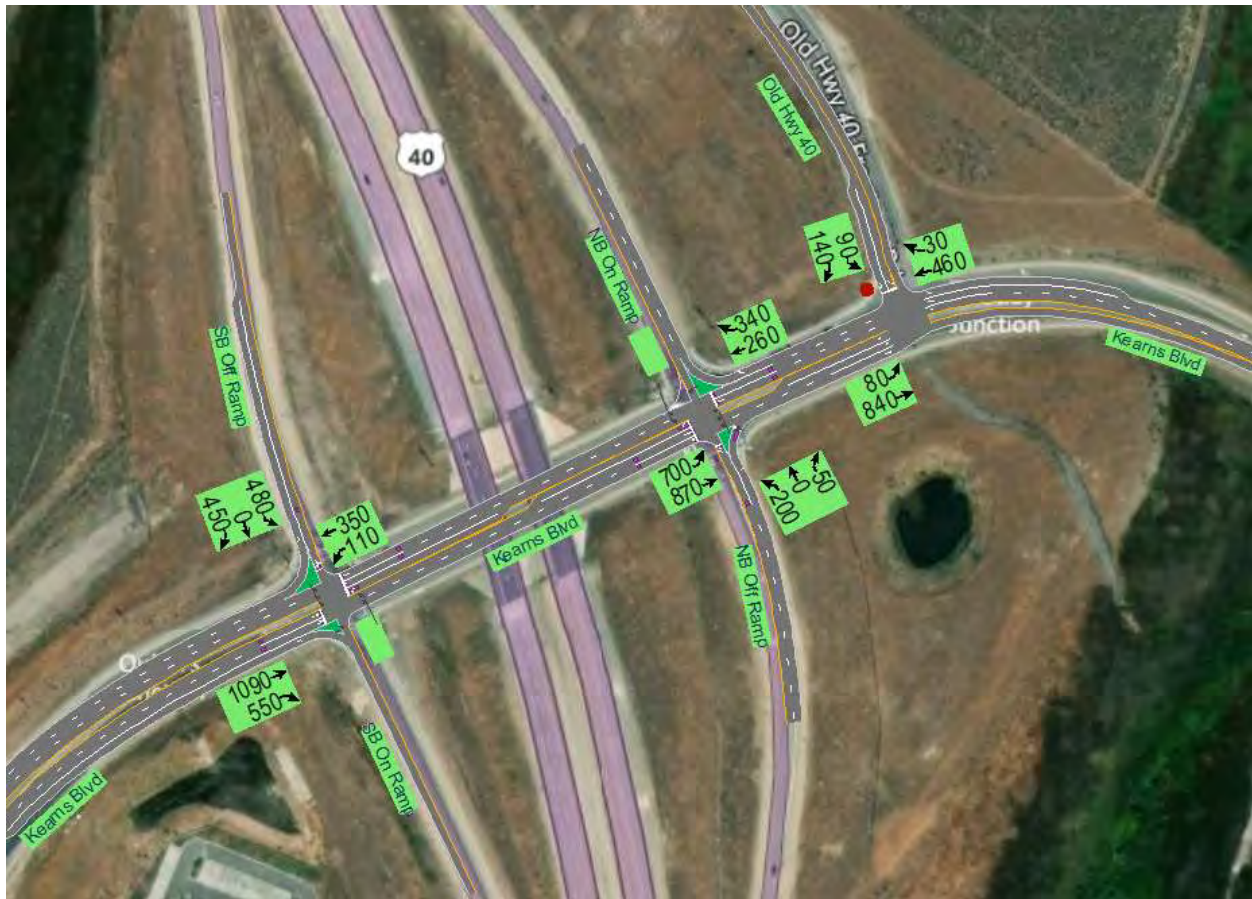


Figure 7: Future (2021) PM Peak Hour



Figure 8: Future (2026) AM Peak Hour

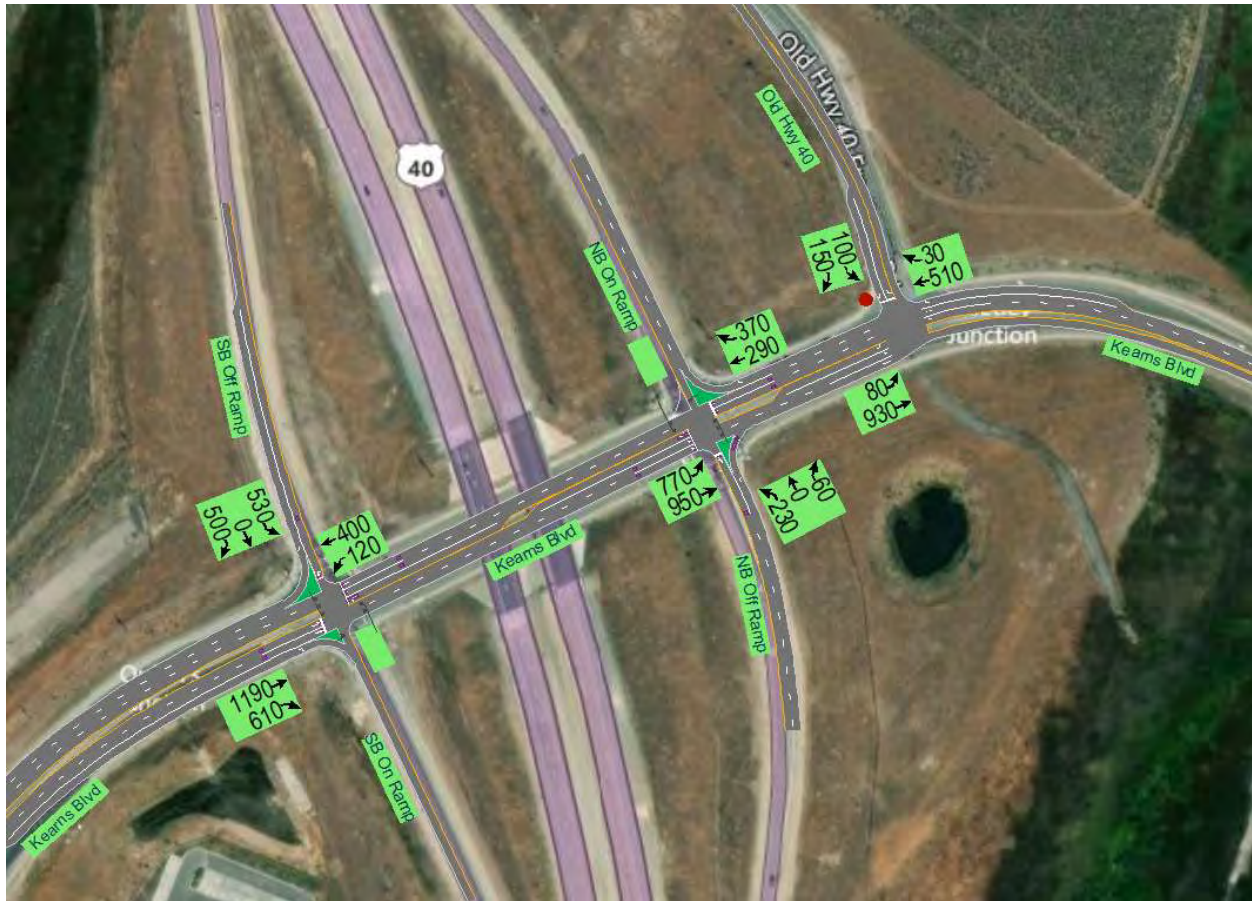


Figure 9: Future (2026) PM Peak Hour



Figure 10: Future (2021) AM Peak Hour – Plus Project



Figure 11: Future (2021) PM Peak Hour – Plus Project



Figure 12: Future (2026) AM Peak Hour – Plus Project



Figure 13: Future (2026) PM Peak Hour – Plus Project

3.2 Level of Service Definition

Level-of-service (LOS) is a qualitative measure describing the operating conditions as perceived by motorists driving in a traffic stream. LOS is calculated using the procedures outlined in the Highway Capacity Manual (HCM), 6th Edition⁴. In addition to traffic volumes, key inputs include the number of lanes at each intersection, traffic control type (signalized or unsignalized), and the traffic signal timing plans, if applicable. The HCM defines six qualitative grades to describe the level of service at an intersection. LOS for two-way stop-controlled intersections is based on the average delay per vehicle on the worst approach. Figure 14 and Figure 15 show the LOS grades and corresponding delay thresholds for unsignalized and signalized intersections, respectively. In urbanized areas, LOS D is typically considered an acceptable LOS.

Control Delay (s/veh)	LOS by Volume-to-Capacity Ratio	
	$v/c \leq 1.0$	$v/c > 1.0$
0–10	A	F
>10–15	B	F
>15–25	C	F
>25–35	D	F
>35–50	E	F
>50	F	F

Figure 14: Unsignalized Intersection LOS

Control Delay (s/veh)	LOS by Volume-to-Capacity Ratio ^a	
	≤ 1.0	> 1.0
≤ 10	A	F
>10–20	B	F
>20–35	C	F
>35–55	D	F
>55–80	E	F
>80	F	F

Note: ^a For approach-based and intersectionwide assessments, LOS is defined solely by control delay.

Figure 15: Signalized Intersection LOS

⁴ Transportation Research Board, 2016.

3.3 Level of Service Results

Synchro version 11 (Trafficware) was used to calculate HCM LOS results for each study intersection for existing, opening year, and design year conditions with and without the project. The LOS results are shown in Table 1 and Table 2 for AM and PM peak hours, respectively (see Appendix B for detailed LOS reports).

The intersections of Kearns Blvd and the US-40 on- and off-ramps are currently operating at LOS C or better during the AM and PM peak hours. By 2026, the intersection of Kearns Blvd and the northbound US-40 ramps is anticipated to operating at LOS D in the PM peak hour in both the background and plus project conditions.

The intersection of Kearns Blvd and Old Hwy 40 is currently operating at LOS E in the PM peak hour and is anticipated to operate at LOS E and F conditions in the future, with or without the project traffic. Potential mitigation measures are discussed in Section 3.5.

The two-way stop-controlled intersections along Old Hwy 40 are all projected to operate at LOS B or better in all analysis conditions.

Table 1. AM LOS and Average Delay Results

Intersection	Control	2020	Opening Year (2021)		Design Year (2026)	
		Existing Conditions	Background	Plus Project	Background	Plus Project
SB On-Ramp/Off-Ramp & Kearns Blvd	Signal	B (11)	B (11)	B (11)	B (12)	B (12)
NB On-Ramp/Off-Ramp & Kearns Blvd	Signal	C (22)	C (23)	C (23)	C (26)	C (26)
Kearns Blvd & Old Hwy 40	Stop	D (33)	D (34)	E (48)	E (42)	F (61)
Old Hwy 40 & Atkinson Rd	Stop	-	-	A (9)	-	A (9)
North Access & Old Hwy 40	Stop	-	-	A (9)	-	A (9)
Bus Entrance & Old Hwy 40	Stop	-	-	A (7)	-	A (7)
Bus Exit & Old Hwy 40	Stop	-	-	A (9)	-	A (9)

Table 2. PM LOS and Average Delay Results

Intersection	Control	2020	Opening Year (2021)		Design Year (2026)	
		Existing Conditions	Background	Plus Project	Background	Plus Project
SB On-Ramp/Off-Ramp & Kearns Blvd	Signal	C (26)	C (27)	D (37)	D (36)	D (54)
NB On-Ramp/Off-Ramp & Kearns Blvd	Signal	B (12)	B (12)	B (14)	B (13)	B (16)
Kearns Blvd & Old Hwy 40	Stop	E (43)	E (48)	F (58)	F (75)	F (93)
Old Hwy 40 & Atkinson Rd	Stop	-	-	B (10)	-	B (11)
North Access & Old Hwy 40	Stop	-	-	A (10)	-	A (10)
Bus Entrance & Old Hwy 40	Stop	-	-	A (8)	-	A (8)
Bus Exit & Old Hwy 40	Stop	-	-	A (10)	-	A (10)

3.4 Queuing Analysis

Projected queue lengths throughout the study area were analyzed in Synchro and compared to existing storage lengths. One area of concern is the back-to-back left-turn pockets between the two US-40 ramp intersections. Currently, a total length of approximately 270 feet is available for left-turn storage between the two intersections, plus an additional 240 feet of transition distance between the left-turn lanes. Based on the Synchro analysis, the total queue length of these two locations is never greater than 240 feet during the AM peak hour in any of the analyzed conditions. However, the PM peak hour is projected to have left-turn queues that exceed the available storage between the intersections. Queue data are included in Appendix C. Mitigation measures may be necessary to accommodate the left-turn demand at this area and are discussed in Section 3.5.

3.5 Mitigation Measures

The Synchro analysis reveals two concerns that merit consideration of mitigation measures. First, the two-way stop-controlled intersection of Kearns Blvd and Old Hwy 40 is projected to operate at LOS F in future conditions, with or without the project. The large delay at this intersection is primarily experienced by the stop-controlled left-turn movement from Old Hwy 40 to eastbound Kearns Blvd. Signalizing this intersection is one alternative to mitigate the delay at this location. Though a signal warrant study has not been performed, the PM peak hour volumes appear to meet the threshold for warranting a signal based on Utah Manual on Uniform

Traffic Control Devices (Utah MUTCD)⁵. However, the close proximity of this intersection to the signalized intersection of Kearns Blvd and the northbound US-40 ramps may make signalization of this intersection unacceptable. Furthermore, the LOS F result from Synchro does not take into account the gaps in traffic provided by signalization of the US-40 ramps, or from the ability of left-turning traffic to turn into the median. When running this model in SimTraffic, the delay and associated left-turn queues are not excessive. Therefore, signalization of this intersection may not be required.

The second concern is the queueing of left-turn traffic between the signalized US-40 ramp intersections. As stated previously, the queues are projected to exceed available storage length in this area in both background and plus project conditions in the PM peak hour. Two potential mitigation measures were considered including:

- Provide side-by-side left-turn lanes the entire length of the interchange area. This would require six total lanes underneath US-40 (instead of the current 5 lanes) as well as some reconfiguration and potential widening of the approaches to the west and east of the interchange. The inclusion of a westbound bus lane underneath US-40 would create a seventh lane. The total paved width is approximately 82 feet which could provide seven 11-foot lanes. This would eliminate shoulders for bicycle lanes which could be mitigated by widening the sidewalks to the outside underneath US-40.
- Provide dual left-turn lanes for the eastbound to northbound movement at the northbound ramps. This would create similar widening issues as the first option. Protected-only left-turn phasing would also be required at this intersection.

Either of these options could better handle anticipated left-turn queueing without negatively impacted traffic operations. Additional options to reduce the number of through lanes could also be explored in order to maintain wider lanes or shoulders. For example, the peak westbound traffic flow at the northbound ramps is anticipated to be approximately 400 vehicles per hour, which could potentially be accommodated with just one through lane.

3.6 Sensitivity Analysis 1 – Full Park and Ride Facility

At the request of Summit County, AECOM performed a sensitivity analysis of the study area assuming the proposed Park and Ride facility is more fully utilized within the study horizon period. Whereas the original analysis was based on the assumption of the new facility would mirror the service to other recently opened Park and Ride facilities, the sensitivity analysis assumed the new Park and Ride facility would be at capacity. Assuming a conservative 40% of cars arrive at the Park and Ride lot within the AM peak hour, the following trip generation values were calculated:

- AM Peak Hour:
 - Inbound: 184 vph

⁵ Utah MUTCD, December 2011 based on MUTCD 2009 Version. Section 4C.04 Warrant 3, Peak Hour.

- Outbound: 18 vph
 - Total: 202 vph
- PM Peak Hour:
 - Inbound: 18 vph
 - Outbound: 184 vph
 - Total: 202 vph

To accommodate these increased number of passengers, the number of roundtrip buses was assumed to increase from 6 per hour to 12 per hour.

As the County's stated concerns centered on the left-turn movement from eastbound SR-248 to northbound Old Highway 40, the AM peak hour was chosen for the analysis. The future 2026 horizon year was chosen to remain most conservative. Additionally, at the request of UDOT, the westbound approach at this intersection was assumed to be one travel lane since the second travel lane is developed only a short distance upstream of the intersection.

Figure 16 shows the traffic volumes assumed for this sensitivity analysis.

While the stochastic analysis results from Synchro only showed a 95th percentile queue length of 2-3 vehicles (less than 100 feet), SimTraffic results show a 95th percentile queue length closer to 250 to 300 feet. Since the existing spacing is only 250 feet, a queue longer than 150 feet (the approximate storage length) could block eastbound traffic. The SimTraffic results also account for the weaving movements that occur between US-40 and Old Highway 40. The traffic signals create gaps that allow traffic from the northbound US-40 exit ramp at SR-248 to change lanes and turn left onto Old Highway 40.

Two potential mitigation measures include the following:

- Relocate the Old Highway 40 intersection approximately 150 feet to the east, and/or
- Signalize the intersection.

Signalizing the intersection would also help alleviate the anticipated southbound delay previously discussed. An advanced warning signal (AWS) should be considered due to the proximity of Old Highway 40 on the curve of SR-248.

Based on conversations with UDOT, UDOT may seek to perform an Intersection Control Evaluation (ICE) study for this area. If this is undertaken, UDOT could consider other interchange configuration options for US-40 and the Old Highway 40 intersection.



Figure 16. Sensitivity Analysis 2026 AM Peak Hour Plus Project Volumes

3.7 Sensitivity Analysis 2 – New Silver Creek Interchange Development

At the request of Summit County, AECOM performed a sensitivity analysis of the study area accounting for a potential large development near the Silver Creek Interchange. According to preliminary data provide by the county, this multi-phase, mixed-use development is anticipated to generate approximately 1,600 vehicle trips and 2,600 vehicle trips per hour in the morning

and afternoon peak house, respectively. According to the County, the estimated proportion of traffic headed to/from the south on Old Highway 40 is estimated to be 30%. This is likely a conservatively high assumption given the close proximity of access to US-40 at Silver Creek. Directional distribution (i.e., northbound versus southbound) was not available, so given the mixed-use nature of the development (both residential and commercial uses), AECOM assumed a 50/50 split in both the AM and PM peak hours. Distribution of these trips to the roadway network at SR-248 was also not known, so AECOM assumed the same distribution as existing trips (approximately 70% west and 30% east). Of the traffic to the west, 50% was assumed to access US-40 to the south and 50% west to/from Park City on SR-248. No traffic was assumed to head north on US-40 as that would route traffic back towards Silver Creek. Based on these assumptions, total new trips on Old Highway 40 were calculated as follows:

- AM Peak Hour:
 - Northbound: 240 vph
 - Southbound: 240 vph
 - Total: 480 vph
- PM Peak Hour:
 - Northbound: 395 vph
 - Southbound: 395 vph
 - Total: 790 vph

Figure 17 shows the 2026 background traffic, new traffic from the proposed project near Silver Creek, and anticipated traffic from the proposed park and ride lot. As shown in Figure 17, the estimated trips from the Silver Creek development represent the majority of anticipated traffic on Old Highway 40 (over half in both peak hours).

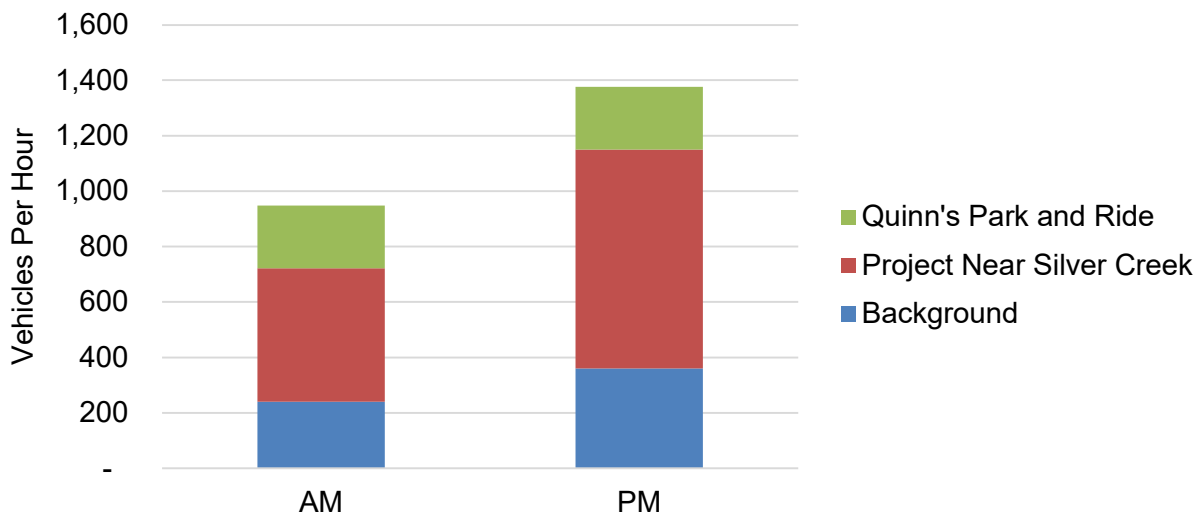


Figure 17. Forecast traffic volumes on Old Highway 40 north of SR-248.

The traffic analyses for 2026 conditions were updated using these forecasted traffic volumes. LOS and delay are shown in Table 3 and Table 4 for the AM and PM peak hours, respectively. As shown in Table 3 and Table 4, delay and LOS at Old Highway 40 deteriorate significantly with the additional Silver Creek Traffic added to the roadway network. With Silver Creek traffic added, this intersection should be moved to the east to increase spacing between it and SR-248, and the intersection will likely warrant signalization.

Table 3. AM LOS and Average Delay Results with Silver Creek Traffic

Intersection	Control	Design Year (2026)		
		Background	Background + Silver King Growth	Plus Project
SB On-Ramp/Off-Ramp & Kearns Blvd	Signal	B (12)	B (12)	B (13)
NB On-Ramp/Off-Ramp & Kearns Blvd	Signal	C (26)	C (31)	C (32)
Kearns Blvd & Old Hwy 40	Stop	E (42)	F (226)	F (>500)
Old Hwy 40 & Atkinson Rd	Stop	-	-	B (11)
North Access & Old Hwy 40	Stop	-	-	B (10)
Bus Entrance & Old Hwy 40	Stop	-	-	A (8)
Bus Exit & Old Hwy 40	Stop	-	-	B (10)

Table 4. PM LOS and Average Delay Results with Silver Creek Traffic

Intersection	Control	Design Year (2026)		
		Background	Background + Silver King Growth	Plus Project
SB On-Ramp/Off-Ramp & Kearns Blvd	Signal	D (36)	E (58)	F (94)
NB On-Ramp/Off-Ramp & Kearns Blvd	Signal	B (13)	D (39)	D (52)
Kearns Blvd & Old Hwy 40	Stop	F (75)	F (>500)	F (>500)
Old Hwy 40 & Atkinson Rd	Stop	-	-	C (16)
North Access & Old Hwy 40	Stop	-	-	B (14)
Bus Entrance & Old Hwy 40	Stop	-	-	A (9)
Bus Exit & Old Hwy 40	Stop	-	-	B (14)

4.0 SAFETY

Historical crash data for the years 2011 to 2020 were obtained from the Utah Department of Transportation crash database and were analyzed for segments and intersections within the study area. A total of 169 crashes occurred within the study area. There were no fatalities reported but there was one suspected serious injury, 17 suspected minor injury, and 19 suspected possible injury crashes. Figure 18 shows the breakdown of crash severity types in the study area.

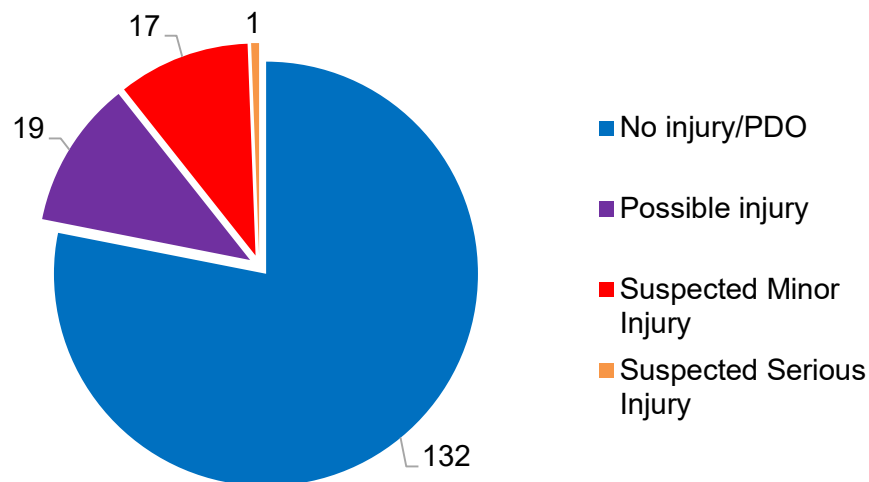


Figure 18. Crash Severity in Study Area

Of these crashes, 118 (70%) occurred at the three intersections in the study area, including 37 of the 45 suspected or possible injury crashes. Figure 19 shows the number of crashes that occurred at each intersection in the study area. The remaining 51 crashes occurred outside of intersections. Of these, only 4 resulted in minor injuries.

The suspected severe injury crash occurred at the intersection of Kearns Blvd and NB US-40 ramps. The collision was an angle crash occurring between an eastbound left-turning vehicle and a westbound through vehicle traveling at high speed. One mitigation measure for this type of collision is eliminate the permitted lefts for the left-turn movement. This could help mitigate both the suspected severe injury at this location as well as the 15 other angle crashes that have occurred at this location in the last 10 years. However, sufficient data were not available for this TIS to determine if all other angle crashes could be prevented with protected-only phasing. Figure 20 shows the breakdown of crash type at the NB Ramps/Kearns Blvd intersection.

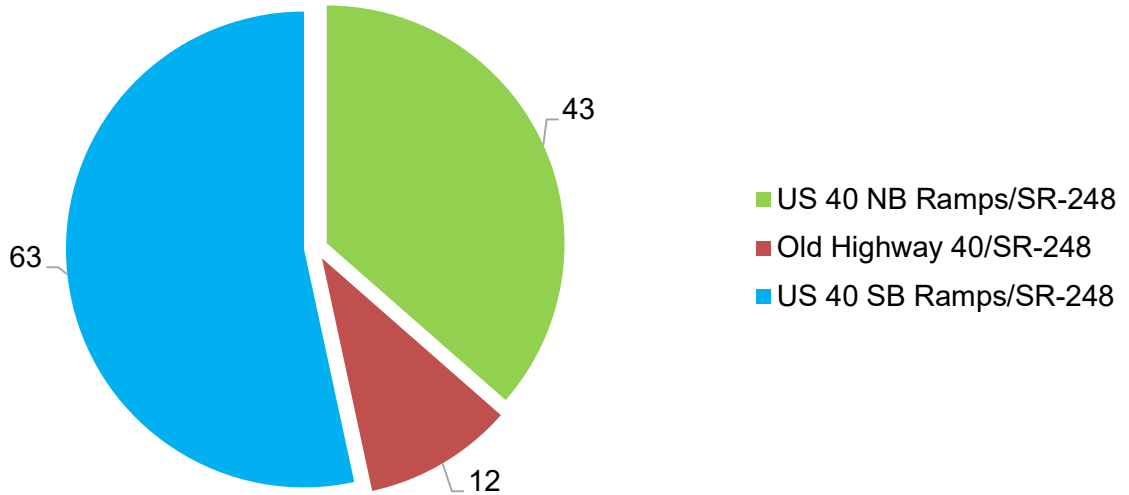


Figure 19: Number of Crashes by Intersection

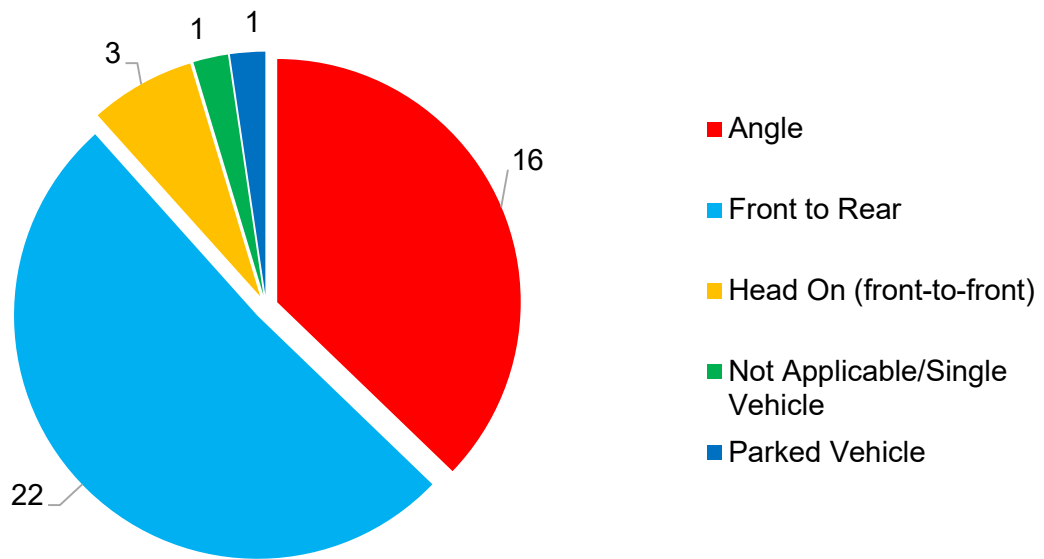


Figure 20. Crash Type at NB US-40 Ramps and Kearns Blvd

5.0 CONCLUSIONS AND RECOMMENDATIONS

This TIS examined the traffic expected to be generated by the proposed 460 parking-stall Park and Ride lot to be constructed on the north side of Kearns Boulevard, between Old Highway 40 and US-40 in Park City, Utah.

Site traffic was generated by comparing the ridership at the Ecker Hill Park and Ride facility with existing traffic counts on SR-224 and applying that ratio to traffic on US-248. New traffic was distributed based on the distance, direction, and relative size of major population centers. Background traffic growth was estimated at approximately 2% per year based on projections in the Summit County Travel Model.

The signalized intersections in the study area are projected to operate at LOS D or better in all analyzed conditions. The unsignalized intersection of Old US-40 and Kearns Blvd is projected to operate at LOS F in future conditions with or without the additional traffic from the Park and Ride project. The queues of the left-turn movements between signalized US-40 Ramp interchanges are projected to exceed existing storage length capacity.

Based on these results, AECOM provides the following recommendations:

- Keep the Old Hwy 40 and Kearns Blvd intersection unsignalized.
- Consider providing side-by-side left-turn lanes underneath US-40 or provide dual left-turn lanes for the eastbound to northbound movement at the northbound ramps.
- Consider eliminating the permissive left-turn phase for the eastbound to northbound movement at the northbound ramps is deemed to be a safety concern.

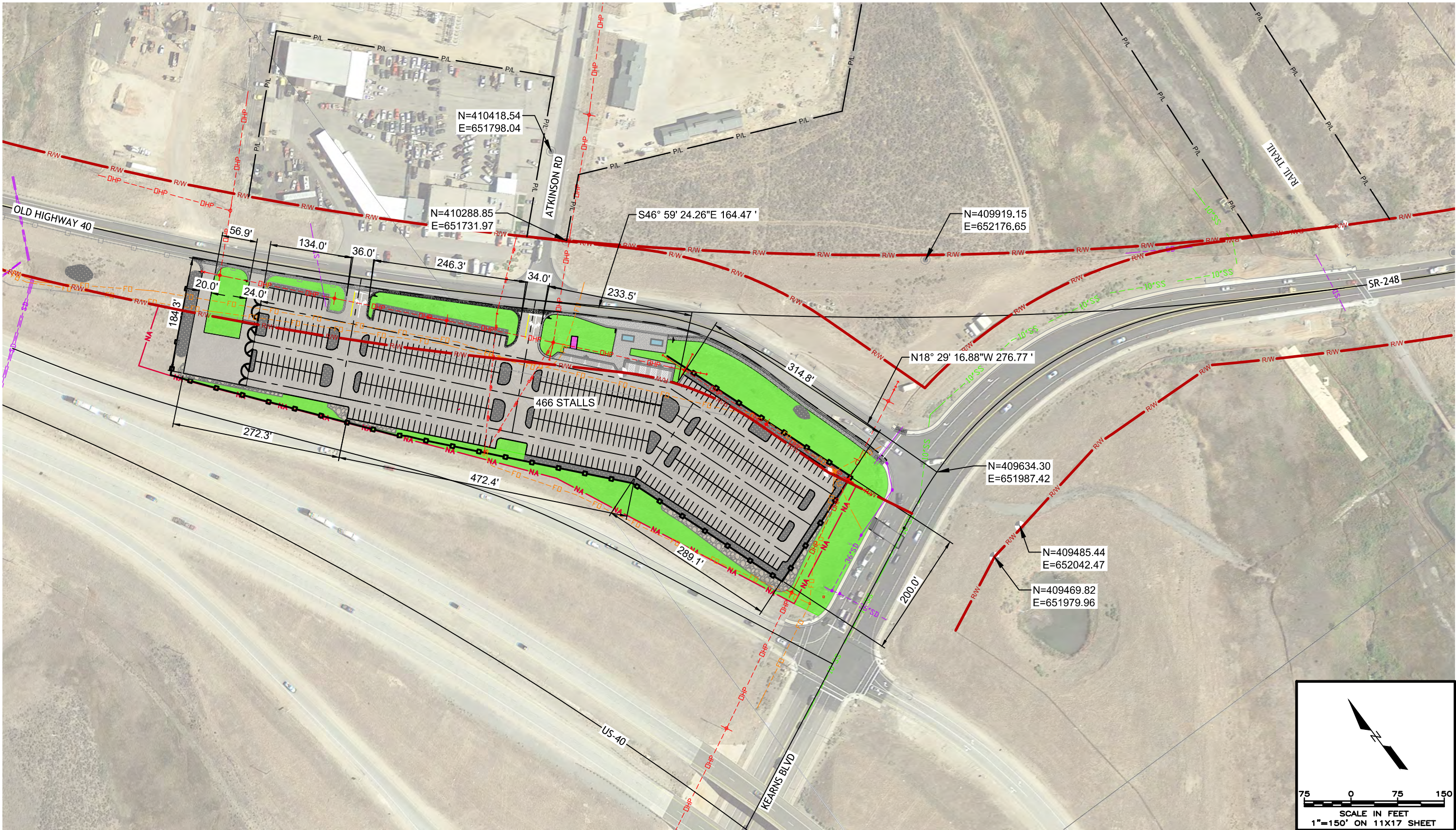
A sensitivity analysis was also performed assuming the proposed Park and Ride facility is more fully utilized within the study horizon period. Results show a 95th percentile queue length closer to 250 to 300 feet. Since the existing spacing is only 250 feet, a queue longer than 150 feet (the approximate storage length) could block eastbound traffic.

Two potential mitigation measures include the following:

- Relocate the Old Highway 40 intersection approximately 150 feet to the east, and/or
- Signalize the intersection.

APPENDIX A: SITE PLAN

DWG File: C:\Users\jupright\OneDrive\AECOM\Directory\6060697 - Quinns Jct Park and Ride - General\6060697 - Quinns Jct Park and Ride\900 - CAD - GIS\910-CAD\20-SHEETS\C-100-103 SITE PLAN.dwg



REV	DATE	DESCRIPTION

60% PLANS

PRELIMINARY
NOT FOR
CONSTRUCTION

Consultant:
AECOM
756 East Winchester Street
Suite 400
Salt Lake City, UT 84107
Phone: (801) 904-4000
Fax: (801) 904-4100
Submitted By: _____

Client:
PARK CITY
1884
Approved By: _____

Designed By:
J. UPRIGHT
Drawn By:
J. UPRIGHT/
S. CARROLL
Checked By:
J. JACOBSON
Approved By:
J. UPRIGHT

QUINN'S JUNCTION PARK AND RIDE
OVERALL SITE
C-100

1" = 150' @ 11X17
CADD Filename:
C-100-103 SITE PLAN.dwg
Submittal Date:
8/14/2020
Contract No.:
60600697
Alignment: Sheet No.:
7
39

APPENDIX B: LOS RESULTS

2020 Existing AM LOS Results

HCM 6th Signalized Intersection Summary

1: SB On Ramp/SB Off Ramp & Kearns Blvd

10/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↑	↑
Traffic Volume (veh/h)	0	380	110	50	810	0	0	0	0	240	0	530
Future Volume (veh/h)	0	380	110	50	810	0	0	0	0	240	0	530
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1826	1826	1826	1826	0				1826	1826	1826
Adj Flow Rate, veh/h	0	413	0	54	880	0				261	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	5	5	5	5	0				5	5	5
Cap, veh/h	0	1141		479	1732	0				367	0	
Arrive On Green	0.00	0.33	0.00	0.05	0.50	0.00				0.21	0.00	0.00
Sat Flow, veh/h	0	3561	1547	1739	3561	0				1739	0	1547
Grp Volume(v), veh/h	0	413	0	54	880	0				261	0	0
Grp Sat Flow(s),veh/h/ln	0	1735	1547	1739	1735	0				1739	0	1547
Q Serve(g_s), s	0.0	4.1	0.0	0.8	7.8	0.0				6.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	4.1	0.0	0.8	7.8	0.0				6.4	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1141		479	1732	0				367	0	
V/C Ratio(X)	0.00	0.36		0.11	0.51	0.00				0.71	0.00	
Avail Cap(c_a), veh/h	0	2525		1135	4427	0				1281	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	11.7	0.0	8.2	7.7	0.0				16.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.1	0.2	0.0				2.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.2	0.0	0.2	1.7	0.0				2.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	11.9	0.0	8.3	7.9	0.0				19.2	0.0	0.0
LnGrp LOS	A	B		A	A	A				B	A	
Approach Vol, veh/h		413	A		934						261	A
Approach Delay, s/veh		11.9			7.9						19.2	
Approach LOS		B			A						B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		29.6			7.8	21.8		16.0				
Change Period (Y+Rc), s		6.8			* 5.3	6.8		6.4				
Max Green Setting (Gmax), s		58.2			* 20	33.2		33.6				
Max Q Clear Time (g_c+l1), s		9.8			2.8	6.1		8.4				
Green Ext Time (p_c), s		6.7			0.1	2.5		1.4				

Intersection Summary

HCM 6th Ctrl Delay	10.8
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

2: NB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	290	330	0	0	380	420	480	0	70	0	0	0
Future Volume (veh/h)	290	330	0	0	380	420	480	0	70	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1826	1826	1826	1826	1826			
Adj Flow Rate, veh/h	315	359	0	0	413	0	522	0	76			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	489	1576	0	0	712		604	0	538			
Arrive On Green	0.17	0.45	0.00	0.00	0.21	0.00	0.35	0.00	0.35			
Sat Flow, veh/h	1739	3561	0	0	3561	1547	1739	0	1547			
Grp Volume(v), veh/h	315	359	0	0	413	0	522	0	76			
Grp Sat Flow(s), veh/h/ln	1739	1735	0	0	1735	1547	1739	0	1547			
Q Serve(g_s), s	9.6	4.6	0.0	0.0	7.9	0.0	20.5	0.0	2.5			
Cycle Q Clear(g_c), s	9.6	4.6	0.0	0.0	7.9	0.0	20.5	0.0	2.5			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	489	1576	0	0	712		604	0	538			
V/C Ratio(X)	0.64	0.23	0.00	0.00	0.58		0.86	0.00	0.14			
Avail Cap(c_a), veh/h	1126	3956	0	0	1822		882	0	785			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	16.9	12.1	0.0	0.0	26.2	0.0	22.3	0.0	16.4			
Incr Delay (d2), s/veh	1.4	0.1	0.0	0.0	0.8	0.0	6.2	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.5	1.5	0.0	0.0	3.0	0.0	8.3	0.0	0.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.3	12.2	0.0	0.0	27.0	0.0	28.4	0.0	16.5			
LnGrp LOS	B	B	A	A	C		C	A	B			
Approach Vol, veh/h	674			413			598					
Approach Delay, s/veh	15.1			27.0			26.9					
Approach LOS	B			C			C					
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	18.2	21.6		33.3		39.8						
Change Period (Y+Rc), s	5.7	6.6		7.9		6.6						
Max Green Setting (Gmax), s	39.3	38.4		37.1		83.4						
Max Q Clear Time (g_c+1), s	11.6	9.9		22.5		6.6						
Green Ext Time (p_c), s	0.9	2.5		2.9		2.3						

Intersection Summary

HCM 6th Ctrl Delay 22.2
 HCM 6th LOS C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection

Int Delay, s/veh 1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	100	300	750	40	20	50
Future Vol, veh/h	100	300	750	40	20	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	166	-	-	280	0	160
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	109	326	815	43	22	54

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	858	0	0 1196 408
Stage 1	-	-	- 815 -
Stage 2	-	-	- 381 -
Critical Hdwy	4.2	-	- 6.9 7
Critical Hdwy Stg 1	-	-	- 5.9 -
Critical Hdwy Stg 2	-	-	- 5.9 -
Follow-up Hdwy	2.25	-	- 3.55 3.35
Pot Cap-1 Maneuver	760	-	- 174 584
Stage 1	-	-	- 388 -
Stage 2	-	-	- 652 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	760	-	- 149 584
Mov Cap-2 Maneuver	-	-	- 149 -
Stage 1	-	-	- 333 -
Stage 2	-	-	- 652 -

Approach	EB	WB	SB
HCM Control Delay, s	2.6	0	17.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	760	-	-	-	149	584
HCM Lane V/C Ratio	0.143	-	-	-	0.146	0.093
HCM Control Delay (s)	10.5	-	-	-	33.2	11.8
HCM Lane LOS	B	-	-	-	D	B
HCM 95th %tile Q(veh)	0.5	-	-	-	0.5	0.3

Intersection

Int Delay, s/veh 0

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	0	70	140	0	0	0
Future Vol, veh/h	0	70	140	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	76	152	0	0	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	152	0	0 228 152
Stage 1	-	-	- 152 -
Stage 2	-	-	- 76 -
Critical Hdwy	4.15	-	- 6.45 6.25
Critical Hdwy Stg 1	-	-	- 5.45 -
Critical Hdwy Stg 2	-	-	- 5.45 -
Follow-up Hdwy	2.245	-	- 3.545 3.345
Pot Cap-1 Maneuver	1411	-	- 754 886
Stage 1	-	-	- 869 -
Stage 2	-	-	- 939 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1411	-	- 754 886
Mov Cap-2 Maneuver	-	-	- 754 -
Stage 1	-	-	- 869 -
Stage 2	-	-	- 939 -

Approach	SE	NW	SW
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NWT	NWR	SEL	SETSWLn1
Capacity (veh/h)	-	-	1411	- -
HCM Lane V/C Ratio	-	-	-	- -
HCM Control Delay (s)	-	-	0	- 0
HCM Lane LOS	-	-	A	- A
HCM 95th %tile Q(veh)	-	-	0	- -

2020 Existing PM LOS Results

HCM 6th Signalized Intersection Summary

1: SB On Ramp/SB Off Ramp & Kearns BLVD

10/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↗	↖	↑↑						↗	↖	
Traffic Volume (veh/h)	0	1070	540	110	350	0	0	0	0	470	0	440	
Future Volume (veh/h)	0	1070	540	110	350	0	0	0	0	470	0	440	
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00	
Work Zone On Approach	No			No						No			
Adj Sat Flow, veh/h/ln	0	1826	1826	1826	1826	0				1826	1826	1826	
Adj Flow Rate, veh/h	0	1163	0	120	380	0				511	0	0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92	
Percent Heavy Veh, %	0	5	5	5	5	0				5	5	5	
Cap, veh/h	0	1505		238	1881	0				567	0		
Arrive On Green	0.00	0.43	0.00	0.11	1.00	0.00				0.33	0.00	0.00	
Sat Flow, veh/h	0	3561	1547	1739	3561	0				1739	0	1547	
Grp Volume(v), veh/h	0	1163	0	120	380	0				511	0	0	
Grp Sat Flow(s),veh/h/ln	0	1735	1547	1739	1735	0				1739	0	1547	
Q Serve(g_s), s	0.0	28.5	0.0	3.7	0.0	0.0				28.1	0.0	0.0	
Cycle Q Clear(g_c), s	0.0	28.5	0.0	3.7	0.0	0.0				28.1	0.0	0.0	
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00	
Lane Grp Cap(c), veh/h	0	1505		238	1881	0				567	0		
V/C Ratio(X)	0.00	0.77		0.50	0.20	0.00				0.90	0.00		
Avail Cap(c_a), veh/h	0	1505		258	1881	0				758	0		
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00	
Upstream Filter(I)	0.00	1.00	0.00	0.98	0.98	0.00				1.00	0.00	0.00	
Uniform Delay (d), s/veh	0.0	24.1	0.0	18.0	0.0	0.0				32.2	0.0	0.0	
Incr Delay (d2), s/veh	0.0	3.9	0.0	1.6	0.2	0.0				11.3	0.0	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.0	11.5	0.0	1.3	0.1	0.0				12.8	0.0	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	0.0	28.0	0.0	19.6	0.2	0.0				43.5	0.0	0.0	
LnGrp LOS	A	C		B	A	A				D	A		
Approach Vol, veh/h	1163		A		500						511		A
Approach Delay, s/veh	28.0				4.9						43.5		
Approach LOS	C				A						D		
Timer - Assigned Phs	2				5		6		8				
Phs Duration (G+Y+Rc), s	61.0				10.8		50.2		39.0				
Change Period (Y+Rc), s	6.8				* 5.3		6.8		6.4				
Max Green Setting (Gmax), s	43.2				* 6.7		31.2		43.6				
Max Q Clear Time (g_c+l1), s	2.0				5.7		30.5		30.1				
Green Ext Time (p_c), s	2.4				0.0		0.5		2.5				

Intersection Summary

HCM 6th Ctrl Delay 26.3
 HCM 6th LOS C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

2: NB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱			↱	↰		↰	↱			
Traffic Volume (veh/h)	690	850	0	0	260	330	200	0	50	0	0	0
Future Volume (veh/h)	690	850	0	0	260	330	200	0	50	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1826	1826	1826	1826	1826			
Adj Flow Rate, veh/h	750	924	0	0	283	0	217	0	54			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	931	2442	0	0	812		263	0	234			
Arrive On Green	0.81	1.00	0.00	0.00	0.23	0.00	0.15	0.00	0.15			
Sat Flow, veh/h	1739	3561	0	0	3561	1547	1739	0	1547			
Grp Volume(v), veh/h	750	924	0	0	283	0	217	0	54			
Grp Sat Flow(s), veh/h/ln	1739	1735	0	0	1735	1547	1739	0	1547			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	6.8	0.0	12.1	0.0	3.1			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	6.8	0.0	12.1	0.0	3.1			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	931	2442	0	0	812		263	0	234			
V/C Ratio(X)	0.81	0.38	0.00	0.00	0.35		0.83	0.00	0.23			
Avail Cap(c_a), veh/h	931	2442	0	0	812		471	0	419			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.33	0.33	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	4.2	0.0	0.0	0.0	31.9	0.0	41.2	0.0	37.3			
Incr Delay (d2), s/veh	1.8	0.1	0.0	0.0	1.2	0.0	6.5	0.0	0.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.3	0.1	0.0	0.0	3.0	0.0	5.4	0.0	1.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.0	0.1	0.0	0.0	33.1	0.0	47.7	0.0	37.8			
LnGrp LOS	A	A	A	A	C		D	A	D			
Approach Vol, veh/h	1674			283			271					
Approach Delay, s/veh	2.8			33.1			45.7					
Approach LOS	A			C			D					
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	47.0	30.0		23.0		77.0						
Change Period (Y+Rc), s	6.6	* 6.6		7.9		6.6						
Max Green Setting (G_max), s	29.3	* 23		27.1		58.4						
Max Q Clear Time (g_c+I), s	12.0	8.8		14.1		2.0						
Green Ext Time (p_c), s	2.7	1.5		1.0		7.3						

Intersection Summary

HCM 6th Ctrl Delay 11.9

HCM 6th LOS B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection

Int Delay, s/veh 3.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	70	830	450	30	90	140
Future Vol, veh/h	70	830	450	30	90	140
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	166	-	-	280	0	160
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	76	902	489	33	98	152

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	522	0	0 1092 245
Stage 1	-	-	- 489 -
Stage 2	-	-	- 603 -
Critical Hdwy	4.2	-	- 6.9 7
Critical Hdwy Stg 1	-	-	- 5.9 -
Critical Hdwy Stg 2	-	-	- 5.9 -
Follow-up Hdwy	2.25	-	- 3.55 3.35
Pot Cap-1 Maneuver	1020	-	- 204 746
Stage 1	-	-	- 574 -
Stage 2	-	-	- 501 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1020	-	- 189 746
Mov Cap-2 Maneuver	-	-	- 189 -
Stage 1	-	-	- 531 -
Stage 2	-	-	- 501 -

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	23.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1020	-	-	-	189	746
HCM Lane V/C Ratio	0.075	-	-	-	0.518	0.204
HCM Control Delay (s)	8.8	-	-	-	42.9	11.1
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	0.2	-	-	-	2.6	0.8

Intersection

Int Delay, s/veh 0

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	0	230	100	0	0	0
Future Vol, veh/h	0	230	100	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	250	109	0	0	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	109	0	0 359 109
Stage 1	-	-	- 109 -
Stage 2	-	-	- 250 -
Critical Hdwy	4.15	-	- 6.45 6.25
Critical Hdwy Stg 1	-	-	- 5.45 -
Critical Hdwy Stg 2	-	-	- 5.45 -
Follow-up Hdwy	2.245	-	- 3.545 3.345
Pot Cap-1 Maneuver	1463	-	- 634 937
Stage 1	-	-	- 908 -
Stage 2	-	-	- 785 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1463	-	- 634 937
Mov Cap-2 Maneuver	-	-	- 634 -
Stage 1	-	-	- 908 -
Stage 2	-	-	- 785 -

Approach	SE	NW	SW
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NWT	NWR	SEL	SETSWLn1
Capacity (veh/h)	-	-	1463	- -
HCM Lane V/C Ratio	-	-	-	- -
HCM Control Delay (s)	-	-	0	- 0
HCM Lane LOS	-	-	A	- A
HCM 95th %tile Q(veh)	-	-	0	- -

2021 AM No Build LOS Results

HCM 6th Signalized Intersection Summary

1: SB On Ramp/SB Off Ramp & Kearns Blvd

10/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↑	↑
Traffic Volume (veh/h)	0	390	110	50	820	0	0	0	0	240	0	540
Future Volume (veh/h)	0	390	110	50	820	0	0	0	0	240	0	540
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No						No		
Adj Sat Flow, veh/h/ln	0	1826	1826	1826	1826	0				1826	1826	1826
Adj Flow Rate, veh/h	0	424	0	54	891	0				261	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	5	5	5	5	0				5	5	5
Cap, veh/h	0	1141		474	1732	0				367	0	
Arrive On Green	0.00	0.33	0.00	0.05	0.50	0.00				0.21	0.00	0.00
Sat Flow, veh/h	0	3561	1547	1739	3561	0				1739	0	1547
Grp Volume(v), veh/h	0	424	0	54	891	0				261	0	0
Grp Sat Flow(s),veh/h/ln	0	1735	1547	1739	1735	0				1739	0	1547
Q Serve(g_s), s	0.0	4.3	0.0	0.8	7.9	0.0				6.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	4.3	0.0	0.8	7.9	0.0				6.4	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1141		474	1732	0				367	0	
V/C Ratio(X)	0.00	0.37		0.11	0.51	0.00				0.71	0.00	
Avail Cap(c_a), veh/h	0	2525		1130	4427	0				1281	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	11.7	0.0	8.2	7.7	0.0				16.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.1	0.2	0.0				2.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.2	0.0	0.2	1.7	0.0				2.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	11.9	0.0	8.3	7.9	0.0				19.2	0.0	0.0
LnGrp LOS	A	B		A	A	A				B	A	
Approach Vol, veh/h		424	A		945						261	A
Approach Delay, s/veh		11.9			7.9						19.2	
Approach LOS		B			A						B	
Timer - Assigned Phs	2			5		6	8					
Phs Duration (G+Y+Rc), s	29.6			7.8		21.8	16.0					
Change Period (Y+Rc), s	6.8			* 5.3		6.8	6.4					
Max Green Setting (Gmax), s	58.2			* 20		33.2	33.6					
Max Q Clear Time (g_c+l1), s	9.9			2.8		6.3	8.4					
Green Ext Time (p_c), s	6.9			0.1		2.6	1.4					

Intersection Summary

HCM 6th Ctrl Delay	10.8
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

2: NB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	290	340	0	0	380	430	490	0	70	0	0	0
Future Volume (veh/h)	290	340	0	0	380	430	490	0	70	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1826	1826	1826	1826	1826			
Adj Flow Rate, veh/h	315	370	0	0	413	0	533	0	76			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	486	1565	0	0	703		614	0	546			
Arrive On Green	0.17	0.45	0.00	0.00	0.20	0.00	0.35	0.00	0.35			
Sat Flow, veh/h	1739	3561	0	0	3561	1547	1739	0	1547			
Grp Volume(v), veh/h	315	370	0	0	413	0	533	0	76			
Grp Sat Flow(s), veh/h/ln	1739	1735	0	0	1735	1547	1739	0	1547			
Q Serve(g_s), s	9.8	4.8	0.0	0.0	8.0	0.0	21.2	0.0	2.5			
Cycle Q Clear(g_c), s	9.8	4.8	0.0	0.0	8.0	0.0	21.2	0.0	2.5			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	486	1565	0	0	703		614	0	546			
V/C Ratio(X)	0.65	0.24	0.00	0.00	0.59		0.87	0.00	0.14			
Avail Cap(c_a), veh/h	1111	3910	0	0	1801		872	0	776			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	17.2	12.5	0.0	0.0	26.7	0.0	22.3	0.0	16.3			
Incr Delay (d2), s/veh	1.5	0.1	0.0	0.0	0.8	0.0	6.8	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.6	1.6	0.0	0.0	3.1	0.0	8.6	0.0	0.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.7	12.6	0.0	0.0	27.5	0.0	29.1	0.0	16.4			
LnGrp LOS	B	B	A	A	C		C	A	B			
Approach Vol, veh/h	685			413			609					
Approach Delay, s/veh	15.4			27.5			27.5					
Approach LOS	B			C			C					
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	18.4	21.6		34.0		40.0						
Change Period (Y+Rc), s	5.7	6.6		7.9		6.6						
Max Green Setting (Gmax), s	39.3	38.4		37.1		83.4						
Max Q Clear Time (g_c+1), s	11.8	10.0		23.2		6.8						
Green Ext Time (p_c), s	0.9	2.5		2.9		2.4						

Intersection Summary

HCM 6th Ctrl Delay 22.6
 HCM 6th LOS C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	100	310	760	40	20	50
Future Vol, veh/h	100	310	760	40	20	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	166	-	-	280	0	160
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	109	337	826	43	22	54
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	869	0	-	0	1213	413
Stage 1	-	-	-	-	826	-
Stage 2	-	-	-	-	387	-
Critical Hdwy	4.2	-	-	-	6.9	7
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	2.25	-	-	-	3.55	3.35
Pot Cap-1 Maneuver	752	-	-	-	170	580
Stage 1	-	-	-	-	383	-
Stage 2	-	-	-	-	647	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	752	-	-	-	145	580
Mov Cap-2 Maneuver	-	-	-	-	145	-
Stage 1	-	-	-	-	327	-
Stage 2	-	-	-	-	647	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.6	0		18.2		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	752	-	-	-	145	580
HCM Lane V/C Ratio	0.145	-	-	-	0.15	0.094
HCM Control Delay (s)	10.6	-	-	-	34.2	11.8
HCM Lane LOS	B	-	-	-	D	B
HCM 95th %tile Q(veh)	0.5	-	-	-	0.5	0.3

Intersection						
Int Delay, s/veh	0					
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	0	70	130	10	0	0
Future Vol, veh/h	0	70	130	10	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	76	141	11	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	152	0	-	0	223	147
Stage 1	-	-	-	-	147	-
Stage 2	-	-	-	-	76	-
Critical Hdwy	4.15	-	-	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	2.245	-	-	-	3.545	3.345
Pot Cap-1 Maneuver	1411	-	-	-	759	892
Stage 1	-	-	-	-	873	-
Stage 2	-	-	-	-	939	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1411	-	-	-	759	892
Mov Cap-2 Maneuver	-	-	-	-	759	-
Stage 1	-	-	-	-	873	-
Stage 2	-	-	-	-	939	-
Approach	SE	NW		SW		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt		NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)		-	-	1411	-	-
HCM Lane V/C Ratio		-	-	-	-	-
HCM Control Delay (s)		-	-	0	-	0
HCM Lane LOS		-	-	A	-	A
HCM 95th %tile Q(veh)		-	-	0	-	-

2021 AM Build LOS Results

HCM 6th Signalized Intersection Summary

1: SB On Ramp/SB Off Ramp & Kearns Blvd

11/03/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↖	↑↑						↖	↗
Traffic Volume (veh/h)	0	396	110	55	826	0	0	0	0	246	0	540
Future Volume (veh/h)	0	396	110	55	826	0	0	0	0	246	0	540
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1826	1826	1826	1826	0				1826	1826	1826
Adj Flow Rate, veh/h	0	430	0	60	898	0				267	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	5	5	5	5	0				5	5	5
Cap, veh/h	0	1135		475	1739	0				367	0	
Arrive On Green	0.00	0.33	0.00	0.06	0.50	0.00				0.21	0.00	0.00
Sat Flow, veh/h	0	3561	1547	1739	3561	0				1739	0	1547
Grp Volume(v), veh/h	0	430	0	60	898	0				267	0	0
Grp Sat Flow(s),veh/h/ln	0	1735	1547	1739	1735	0				1739	0	1547
Q Serve(g_s), s	0.0	4.4	0.0	0.9	8.0	0.0				6.6	0.0	0.0
Cycle Q Clear(g_c), s	0.0	4.4	0.0	0.9	8.0	0.0				6.6	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1135		475	1739	0				367	0	
V/C Ratio(X)	0.00	0.38		0.13	0.52	0.00				0.73	0.00	
Avail Cap(c_a), veh/h	0	2513		1121	4405	0				1275	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	11.8	0.0	8.2	7.7	0.0				16.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.1	0.2	0.0				2.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.3	0.0	0.2	1.7	0.0				2.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.0	0.0	8.3	7.9	0.0				19.6	0.0	0.0
LnGrp LOS	A	B		A	A	A				B	A	
Approach Vol, veh/h		430	A		958						267	A
Approach Delay, s/veh		12.0			8.0						19.6	
Approach LOS		B			A						B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		29.8			8.0	21.8		16.1				
Change Period (Y+Rc), s		6.8			* 5.3	6.8		6.4				
Max Green Setting (Gmax), s		58.2			* 20	33.2		33.6				
Max Q Clear Time (g_c+I1), s		10.0			2.9	6.4		8.6				
Green Ext Time (p_c), s		6.9			0.1	2.6		1.4				

Intersection Summary

HCM 6th Ctrl Delay	10.9
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

2: NB Off Ramp/NB On Ramp & Kearns Blvd

11/03/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	290	352	0	0	391	431	490	0	120	0	0	0
Future Volume (veh/h)	290	352	0	0	391	431	490	0	120	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1826	1826	1826	1826	1826			
Adj Flow Rate, veh/h	315	383	0	0	425	0	533	0	130			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	480	1562	0	0	701		616	0	548			
Arrive On Green	0.17	0.45	0.00	0.00	0.20	0.00	0.35	0.00	0.35			
Sat Flow, veh/h	1739	3561	0	0	3561	1547	1739	0	1547			
Grp Volume(v), veh/h	315	383	0	0	425	0	533	0	130			
Grp Sat Flow(s),veh/h/ln	1739	1735	0	0	1735	1547	1739	0	1547			
Q Serve(g_s), s	9.8	5.1	0.0	0.0	8.3	0.0	21.2	0.0	4.4			
Cycle Q Clear(g_c), s	9.8	5.1	0.0	0.0	8.3	0.0	21.2	0.0	4.4			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	480	1562	0	0	701		616	0	548			
V/C Ratio(X)	0.66	0.25	0.00	0.00	0.61		0.87	0.00	0.24			
Avail Cap(c_a), veh/h	1103	3899	0	0	1795		869	0	774			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	17.4	12.6	0.0	0.0	26.9	0.0	22.3	0.0	16.9			
Incr Delay (d2), s/veh	1.5	0.1	0.0	0.0	0.8	0.0	6.6	0.0	0.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.6	1.7	0.0	0.0	3.2	0.0	8.6	0.0	1.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.9	12.7	0.0	0.0	27.8	0.0	29.0	0.0	17.1			
LnGrp LOS	B	B	A	A	C		C	A	B			
Approach Vol, veh/h	698			425			663					
Approach Delay, s/veh	15.5			27.8			26.6					
Approach LOS	B			C			C					
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	18.4	21.6		34.2		40.0						
Change Period (Y+Rc), s	5.7	6.6		7.9		6.6						
Max Green Setting (Gmax), s	39.3	38.4		37.1		83.4						
Max Q Clear Time (g_c+I1), s	11.8	10.3		23.2		7.1						
Green Ext Time (p_c), s	0.9	2.6		3.1		2.5						
Intersection Summary												
HCM 6th Ctrl Delay	22.5											
HCM 6th LOS	C											
Notes												

HCM 6th TWSC
3: Kearns Blvd & Old Hwy 40

11/03/2020

Intersection

Int Delay, s/veh 2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	162	310	760	43	20	62
Future Vol, veh/h	162	310	760	43	20	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	166	-	-	280	0	160
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	176	337	826	47	22	67

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	873	0	0 1347 413
Stage 1	-	-	- 826 -
Stage 2	-	-	- 521 -
Critical Hdwy	4.2	-	- 6.9 7
Critical Hdwy Stg 1	-	-	- 5.9 -
Critical Hdwy Stg 2	-	-	- 5.9 -
Follow-up Hdwy	2.25	-	- 3.55 3.35
Pot Cap-1 Maneuver	750	-	- 139 580
Stage 1	-	-	- 383 -
Stage 2	-	-	- 552 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	750	-	- 106 580
Mov Cap-2 Maneuver	-	-	- 106 -
Stage 1	-	-	- 293 -
Stage 2	-	-	- 552 -

Approach	EB	WB	SB
HCM Control Delay, s	3.9	0	20.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	750	-	-	-	106	580
HCM Lane V/C Ratio	0.235	-	-	-	0.205	0.116
HCM Control Delay (s)	11.3	-	-	-	47.5	12
HCM Lane LOS	B	-	-	-	E	B
HCM 95th %tile Q(veh)	0.9	-	-	-	0.7	0.4

HCM 2010 TWSC
4: Old Hwy 40 & Atkinson Rd

10/13/2020

Intersection												
Int Delay, s/veh	1.4											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Vol, veh/h	0	79	0	50	155	0	0	0	3	0	0	0
Future Vol, veh/h	0	79	0	50	155	0	0	0	3	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	86	0	54	168	0	0	0	3	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	168	0	-	86	0	0	362	362	86	364	362	168
Stage 1	-	-	-	-	-	-	86	86	-	276	276	-
Stage 2	-	-	-	-	-	-	276	276	-	88	86	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1392	-	0	1492	-	-	588	561	964	586	561	868
Stage 1	-	-	0	-	-	-	914	818	-	724	676	-
Stage 2	-	-	0	-	-	-	724	676	-	912	818	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1392	-	-	1492	-	-	570	539	964	566	539	868
Mov Cap-2 Maneuver	-	-	-	-	-	-	570	539	-	566	539	-
Stage 1	-	-	-	-	-	-	914	818	-	724	649	-
Stage 2	-	-	-	-	-	-	695	649	-	909	818	-
Approach	SE			NW			NE			SW		
HCM Control Delay, s	0			1.8			8.7			0		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NELn1NELn2		NWL	NWT	NWR	SEL	SETSWLn1SWLn2					
Capacity (veh/h)	- 964		1492	-	-	1392	- -		-	-	-	-
HCM Lane V/C Ratio	- 0.003		0.036	-	-	-	- -		-	-	-	-
HCM Control Delay (s)	0		8.7	7.5	0	0	- 0		0	0		
HCM Lane LOS	A		A	A	-	A	- A		A	A		
HCM 95th %tile Q(veh)	- 0		0.1	-	-	0	- -		-	-		

Intersection						
Int Delay, s/veh	0.4					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	76	0	9	146	0	3
Future Vol, veh/h	76	0	9	146	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	83	0	10	159	0	3
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	83	0	262	83
Stage 1	-	-	-	-	83	-
Stage 2	-	-	-	-	179	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1495	-	721	968
Stage 1	-	-	-	-	933	-
Stage 2	-	-	-	-	845	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1495	-	716	968
Mov Cap-2 Maneuver	-	-	-	-	716	-
Stage 1	-	-	-	-	933	-
Stage 2	-	-	-	-	839	-
Approach	SE	NW		NE		
HCM Control Delay, s	0	0.4		8.7		
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	SET	SER
Capacity (veh/h)	-	968	1495	-	-	-
HCM Lane V/C Ratio	-	0.003	0.007	-	-	-
HCM Control Delay (s)	0	8.7	7.4	0	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	-	0	0	-	-	-

Intersection

Int Delay, s/veh 0.2

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	76	0	6	140	0	0
Future Vol, veh/h	76	0	6	140	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	83	0	7	152	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	83
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.15
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.245
Pot Cap-1 Maneuver	-	-	1495
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1495
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SE	NW	NE
HCM Control Delay, s	0	0.3	0
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	-	1495	-	-	-
HCM Lane V/C Ratio	-	0.004	-	-	-
HCM Control Delay (s)	0	7.4	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-	-

Intersection

Int Delay, s/veh 0.2

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	70	0	0	140	0	6
Future Vol, veh/h	70	0	0	140	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	76	0	0	152	0	7

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	76
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.15
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.245
Pot Cap-1 Maneuver	-	-	1504
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1504
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SE	NW	NE
HCM Control Delay, s	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	977	1504	-	-	-
HCM Lane V/C Ratio	0.007	-	-	-	-
HCM Control Delay (s)	8.7	0	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	0	0	-	-	-

2021 PM No Build LOS Results

HCM 6th Signalized Intersection Summary

1: SB On Ramp/SB Off Ramp & Kearns Blvd

10/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↑	↑
Traffic Volume (veh/h)	0	1090	550	110	350	0	0	0	0	480	0	450
Future Volume (veh/h)	0	1090	550	110	350	0	0	0	0	480	0	450
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1826	1826	1826	1826	0				1826	1826	1826
Adj Flow Rate, veh/h	0	1185	0	120	380	0				522	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	5	5	5	5	0				5	5	5
Cap, veh/h	0	1482		229	1859	0				577	0	
Arrive On Green	0.00	0.43	0.00	0.11	1.00	0.00				0.33	0.00	0.00
Sat Flow, veh/h	0	3561	1547	1739	3561	0				1739	0	1547
Grp Volume(v), veh/h	0	1185	0	120	380	0				522	0	0
Grp Sat Flow(s),veh/h/ln	0	1735	1547	1739	1735	0				1739	0	1547
Q Serve(g_s), s	0.0	29.7	0.0	3.7	0.0	0.0				28.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	29.7	0.0	3.7	0.0	0.0				28.7	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1482		229	1859	0				577	0	
V/C Ratio(X)	0.00	0.80		0.52	0.20	0.00				0.90	0.00	
Avail Cap(c_a), veh/h	0	1482		249	1859	0				758	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.98	0.98	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	24.9	0.0	18.8	0.0	0.0				31.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	4.6	0.0	1.8	0.2	0.0				11.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.1	0.0	1.3	0.1	0.0				13.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	29.5	0.0	20.6	0.2	0.0				43.7	0.0	0.0
LnGrp LOS	A	C		C	A	A				D	A	
Approach Vol, veh/h		1185	A		500						522	A
Approach Delay, s/veh		29.5			5.1						43.7	
Approach LOS		C			A						D	
Timer - Assigned Phs		2			5	6			8			
Phs Duration (G+Y+Rc), s		60.4			10.9	49.5			39.6			
Change Period (Y+Rc), s		6.8			* 5.3	6.8			6.4			
Max Green Setting (Gmax), s		43.2			* 6.7	31.2			43.6			
Max Q Clear Time (g_c+l1), s		2.0			5.7	31.7			30.7			
Green Ext Time (p_c), s		2.4			0.0	0.0			2.6			

Intersection Summary

HCM 6th Ctrl Delay	27.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

2: NB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	700	870	0	0	260	340	200	0	50	0	0	0
Future Volume (veh/h)	700	870	0	0	260	340	200	0	50	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1826	1826	1826	1826	1826			
Adj Flow Rate, veh/h	761	946	0	0	283	0	217	0	54			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	931	2442	0	0	812		263	0	234			
Arrive On Green	0.81	1.00	0.00	0.00	0.23	0.00	0.15	0.00	0.15			
Sat Flow, veh/h	1739	3561	0	0	3561	1547	1739	0	1547			
Grp Volume(v), veh/h	761	946	0	0	283	0	217	0	54			
Grp Sat Flow(s), veh/h/ln	1739	1735	0	0	1735	1547	1739	0	1547			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	6.8	0.0	12.1	0.0	3.1			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	6.8	0.0	12.1	0.0	3.1			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	931	2442	0	0	812		263	0	234			
V/C Ratio(X)	0.82	0.39	0.00	0.00	0.35		0.83	0.00	0.23			
Avail Cap(c_a), veh/h	931	2442	0	0	812		471	0	419			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.28	0.28	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	4.2	0.0	0.0	0.0	31.9	0.0	41.2	0.0	37.3			
Incr Delay (d2), s/veh	1.7	0.1	0.0	0.0	1.2	0.0	6.5	0.0	0.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.3	0.0	0.0	0.0	2.9	0.0	5.4	0.0	1.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.9	0.1	0.0	0.0	33.1	0.0	47.7	0.0	37.8			
LnGrp LOS	A	A	A	A	C		D	A	D			
Approach Vol, veh/h	1707			283			271					
Approach Delay, s/veh	2.7			33.1			45.7					
Approach LOS	A			C			D					
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	47.0	30.0		23.0		77.0						
Change Period (Y+Rc), s	6.6	* 6.6		7.9		6.6						
Max Green Setting (Gmax), s	29.3	* 23		27.1		58.4						
Max Q Clear Time (g_c+I), s	12.0	8.8		14.1		2.0						
Green Ext Time (p_c), s	2.8	1.3		1.0		7.5						

Intersection Summary

HCM 6th Ctrl Delay 11.7

HCM 6th LOS B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	4.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	80	840	460	30	90	140
Future Vol, veh/h	80	840	460	30	90	140
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	166	-	-	280	0	160
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	87	913	500	33	98	152
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	533	0	-	0	1131	250
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	631	-
Critical Hdwy	4.2	-	-	-	6.9	7
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	2.25	-	-	-	3.55	3.35
Pot Cap-1 Maneuver	1010	-	-	-	193	741
Stage 1	-	-	-	-	566	-
Stage 2	-	-	-	-	484	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1010	-	-	-	176	741
Mov Cap-2 Maneuver	-	-	-	-	176	-
Stage 1	-	-	-	-	517	-
Stage 2	-	-	-	-	484	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.8	0		25.7		
HCM LOS	D					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1010	-	-	-	176	741
HCM Lane V/C Ratio	0.086	-	-	-	0.556	0.205
HCM Control Delay (s)	8.9	-	-	-	48.4	11.1
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	0.3	-	-	-	2.9	0.8

Intersection						
Int Delay, s/veh	0					
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	0	230	110	0	0	0
Future Vol, veh/h	0	230	110	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	250	120	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	120	0	-	0	370	120
Stage 1	-	-	-	-	120	-
Stage 2	-	-	-	-	250	-
Critical Hdwy	4.15	-	-	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	2.245	-	-	-	3.545	3.345
Pot Cap-1 Maneuver	1449	-	-	-	624	923
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	785	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1449	-	-	-	624	923
Mov Cap-2 Maneuver	-	-	-	-	624	-
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	785	-
Approach	SE	NW		SW		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1	
Capacity (veh/h)	-	-	1449	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	-	-	0	-	0	
HCM Lane LOS	-	-	A	-	A	
HCM 95th %tile Q(veh)	-	-	0	-	-	

2021 PM Build LOS Results

HCM 6th Signalized Intersection Summary

1: SB On Ramp/SB Off Ramp & Kearns Blvd

11/03/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↑	↑
Traffic Volume (veh/h)	0	1096	550	186	356	0	0	0	0	481	0	450
Future Volume (veh/h)	0	1096	550	186	356	0	0	0	0	481	0	450
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1826	1826	1826	1826	0				1826	1826	1826
Adj Flow Rate, veh/h	0	1191	598	202	387	0				523	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	5	5	5	5	0				5	5	5
Cap, veh/h	0	1419	633	248	1902	0				556	0	
Arrive On Green	0.00	0.41	0.41	0.17	1.00	0.00				0.32	0.00	0.00
Sat Flow, veh/h	0	3561	1547	1739	3561	0				1739	0	1547
Grp Volume(v), veh/h	0	1191	598	202	387	0				523	0	0
Grp Sat Flow(s),veh/h/ln	0	1735	1547	1739	1735	0				1739	0	1547
Q Serve(g_s), s	0.0	30.9	37.2	6.6	0.0	0.0				29.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	30.9	37.2	6.6	0.0	0.0				29.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1419	633	248	1902	0				556	0	
V/C Ratio(X)	0.00	0.84	0.95	0.82	0.20	0.00				0.94	0.00	
Avail Cap(c_a), veh/h	0	1419	633	249	1902	0				584	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.95	0.95	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	26.6	28.5	19.8	0.0	0.0				33.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	6.1	24.5	17.7	0.2	0.0				22.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.9	16.9	3.2	0.1	0.0				15.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	32.7	53.0	37.5	0.2	0.0				56.0	0.0	0.0
LnGrp LOS	A	C	D	D	A	A				E	A	
Approach Vol, veh/h		1789			589						523	A
Approach Delay, s/veh		39.5			13.0						56.0	
Approach LOS		D			B						E	
Timer - Assigned Phs		2			5	6			8			
Phs Duration (G+Y+Rc), s		61.6			13.9	47.7			38.4			
Change Period (Y+Rc), s		6.8			* 5.3	6.8			6.4			
Max Green Setting (Gmax), s		53.2			* 8.7	39.2			33.6			
Max Q Clear Time (g_c+l1), s		2.0			8.6	39.2			31.3			
Green Ext Time (p_c), s		2.5			0.0	0.0			0.7			
Intersection Summary												
HCM 6th Ctrl Delay				37.1								
HCM 6th LOS				D								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary

2: NB Off Ramp/NB On Ramp & Kearns Blvd

11/03/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	700	877	0	0	342	349	200	0	58	0	0	0
Future Volume (veh/h)	700	877	0	0	342	349	200	0	58	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1826	1826	1826	1826	1826			
Adj Flow Rate, veh/h	761	953	0	0	372	0	217	0	63			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	894	2441	0	0	812		263	0	234			
Arrive On Green	0.81	1.00	0.00	0.00	0.23	0.00	0.15	0.00	0.15			
Sat Flow, veh/h	1739	3561	0	0	3561	1547	1739	0	1547			
Grp Volume(v), veh/h	761	953	0	0	372	0	217	0	63			
Grp Sat Flow(s),veh/h/ln	1739	1735	0	0	1735	1547	1739	0	1547			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	9.2	0.0	12.1	0.0	3.6			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	9.2	0.0	12.1	0.0	3.6			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	894	2441	0	0	812		263	0	234			
V/C Ratio(X)	0.85	0.39	0.00	0.00	0.46		0.82	0.00	0.27			
Avail Cap(c_a), veh/h	894	2441	0	0	812		471	0	419			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.38	0.38	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	4.8	0.0	0.0	0.0	32.9	0.0	41.1	0.0	37.5			
Incr Delay (d2), s/veh	3.2	0.2	0.0	0.0	1.9	0.0	6.4	0.0	0.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.9	0.1	0.0	0.0	3.9	0.0	5.4	0.0	1.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.0	0.2	0.0	0.0	34.7	0.0	47.6	0.0	38.1			
LnGrp LOS	A	A	A	A	C		D	A	D			
Approach Vol, veh/h	1714				372		A		280			
Approach Delay, s/veh	3.6				34.7				45.4			
Approach LOS	A				C				D			
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	47.0	30.0		23.0		77.0						
Change Period (Y+Rc), s	6.6	* 6.6		7.9		6.6						
Max Green Setting (Gmax), s	29.3	* 23		27.1		58.4						
Max Q Clear Time (g_c+I1), s	2.0	11.2		14.1		2.0						
Green Ext Time (p_c), s	2.8	1.7		1.0		7.6						
Intersection Summary												
HCM 6th Ctrl Delay	13.5											
HCM 6th LOS	B											
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th TWSC
3: Kearns Blvd & Old Hwy 40

11/03/2020

Intersection						
Int Delay, s/veh	5.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	95	840	460	30	94	231
Future Vol, veh/h	95	840	460	30	94	231
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	166	-	-	280	0	160
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	103	913	500	33	102	251
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	533	0	-	0	1163	250
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	663	-
Critical Hdwy	4.2	-	-	-	6.9	7
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	2.25	-	-	-	3.55	3.35
Pot Cap-1 Maneuver	1010	-	-	-	183	741
Stage 1	-	-	-	-	566	-
Stage 2	-	-	-	-	466	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1010	-	-	-	164	741
Mov Cap-2 Maneuver	-	-	-	-	164	-
Stage 1	-	-	-	-	508	-
Stage 2	-	-	-	-	466	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.9	0		25.4		
HCM LOS	D					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1010	-	-	-	164	741
HCM Lane V/C Ratio	0.102	-	-	-	0.623	0.339
HCM Control Delay (s)	9	-	-	-	57.7	12.3
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	0.3	-	-	-	3.4	1.5

Intersection												
Int Delay, s/veh	1.7											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Vol, veh/h	0	255	0	5	120	0	0	0	70	0	0	0
Future Vol, veh/h	0	255	0	5	120	0	0	0	70	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	277	0	5	130	0	0	0	76	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	130	0	-	277	0	0	417	417	277	455	417	130
Stage 1	-	-	-	-	-	-	277	277	-	140	140	-
Stage 2	-	-	-	-	-	-	140	140	-	315	277	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1437	-	0	1269	-	-	541	522	755	510	522	912
Stage 1	-	-	0	-	-	-	723	676	-	856	775	-
Stage 2	-	-	0	-	-	-	856	775	-	690	676	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1437	-	-	1269	-	-	539	520	755	457	520	912
Mov Cap-2 Maneuver	-	-	-	-	-	-	539	520	-	457	520	-
Stage 1	-	-	-	-	-	-	723	676	-	856	772	-
Stage 2	-	-	-	-	-	-	853	772	-	620	676	-
Approach	SE			NW			NE			SW		
HCM Control Delay, s	0			0.3			10.3			0		
HCM LOS							B			A		
Minor Lane/Major Mvmt	NELn1NELn2		NWL	NWT	NWR	SEL	SETSWLn1SWLn2					
Capacity (veh/h)	- 755		1269	-	-	1437	- -		-	-	-	-
HCM Lane V/C Ratio	- 0.101		0.004	-	-	-	- -		-	-	-	-
HCM Control Delay (s)	0 10.3		7.8	0	-	0	- 0		0	0		
HCM Lane LOS	A B		A A	-	-	A	- A		A	A		
HCM 95th %tile Q(veh)	- 0.3		0	-	-	0	- -		-	-	-	-

Intersection

Int Delay, s/veh 0.6

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	236	0	4	116	0	19
Future Vol, veh/h	236	0	4	116	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	257	0	4	126	0	21

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	257
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.15
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.245
Pot Cap-1 Maneuver	-	-	1290
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1290
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SE	NW	NE
HCM Control Delay, s	0	0.3	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	SET	SER
Capacity (veh/h)	-	774	1290	-	-	-
HCM Lane V/C Ratio	-	0.027	0.003	-	-	-
HCM Control Delay (s)	0	9.8	7.8	0	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	-	0.1	0	-	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	236	0	6	110	0	0
Future Vol, veh/h	236	0	6	110	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	257	0	7	120	0	0
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	257	0	391	257
Stage 1	-	-	-	-	257	-
Stage 2	-	-	-	-	134	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1290	-	607	774
Stage 1	-	-	-	-	779	-
Stage 2	-	-	-	-	885	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1290	-	603	774
Mov Cap-2 Maneuver	-	-	-	-	603	-
Stage 1	-	-	-	-	779	-
Stage 2	-	-	-	-	880	-
Approach	SE	NW		NE		
HCM Control Delay, s	0	0.4		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	-	1290	-	-	-	-
HCM Lane V/C Ratio	-	0.005	-	-	-	-
HCM Control Delay (s)	0	7.8	0	-	-	-
HCM Lane LOS	A	A	A	-	-	-
HCM 95th %tile Q(veh)	-	0	-	-	-	-

Intersection						
Int Delay, s/veh	0.2					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	230	0	0	110	0	6
Future Vol, veh/h	230	0	0	110	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	250	0	0	120	0	7
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	250	0	370	250
Stage 1	-	-	-	-	250	-
Stage 2	-	-	-	-	120	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1298	-	624	781
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	898	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1298	-	624	781
Mov Cap-2 Maneuver	-	-	-	-	624	-
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	898	-
Approach	SE	NW		NE		
HCM Control Delay, s	0	0		9.6		
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	781	1298	-	-	-	
HCM Lane V/C Ratio	0.008	-	-	-	-	
HCM Control Delay (s)	9.6	0	-	-	-	
HCM Lane LOS	A	A	-	-	-	
HCM 95th %tile Q(veh)	0	0	-	-	-	

2026 AM No Build LOS Results

HCM 6th Signalized Intersection Summary 1: SB On Ramp/SB Off Ramp & Kearns Blvd

10/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↑	↑
Traffic Volume (veh/h)	0	420	120	50	900	0	0	0	0	270	0	590
Future Volume (veh/h)	0	420	120	50	900	0	0	0	0	270	0	590
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	0	1826	1826	1826	1826	0				1826	1826	1826
Adj Flow Rate, veh/h	0	457	0	54	978	0				293	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	5	5	5	5	0				5	5	5
Cap, veh/h	0	1116		448	1697	0				396	0	
Arrive On Green	0.00	0.32	0.00	0.05	0.49	0.00				0.23	0.00	0.00
Sat Flow, veh/h	0	3561	1547	1739	3561	0				1739	0	1547
Grp Volume(v), veh/h	0	457	0	54	978	0				293	0	0
Grp Sat Flow(s),veh/h/ln	0	1735	1547	1739	1735	0				1739	0	1547
Q Serve(g_s), s	0.0	4.8	0.0	0.9	9.4	0.0				7.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	4.8	0.0	0.9	9.4	0.0				7.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1116		448	1697	0				396	0	
V/C Ratio(X)	0.00	0.41		0.12	0.58	0.00				0.74	0.00	
Avail Cap(c_a), veh/h	0	2469		1088	4328	0				1253	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	12.4	0.0	8.7	8.5	0.0				16.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.1	0.3	0.0				2.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.4	0.0	0.2	2.2	0.0				2.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.6	0.0	8.8	8.8	0.0				19.4	0.0	0.0
LnGrp LOS	A	B		A	A	A				B	A	
Approach Vol, veh/h	457		A		1032				293		A	
Approach Delay, s/veh	12.6				8.8				19.4			
Approach LOS	B				A				B			
Timer - Assigned Phs	2				5		6		8			
Phs Duration (G+Y+Rc), s	29.6				7.8		21.8		17.0			
Change Period (Y+Rc), s	6.8				* 5.3		6.8		6.4			
Max Green Setting (Gmax), s	58.2				* 20		33.2		33.6			
Max Q Clear Time (g_c+I1), s	11.4				2.9		6.8		9.3			
Green Ext Time (p_c), s	7.8				0.1		2.8		1.6			

Intersection Summary

HCM 6th Ctrl Delay	11.5
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

2: NB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱			↱	↰		↰	↱			
Traffic Volume (veh/h)	320	370	0	0	410	470	540	0	80	0	0	0
Future Volume (veh/h)	320	370	0	0	410	470	540	0	80	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1826	1826	1826	1826	1826			
Adj Flow Rate, veh/h	348	402	0	0	446	0	587	0	87			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	476	1541	0	0	645		654	0	582			
Arrive On Green	0.19	0.44	0.00	0.00	0.19	0.00	0.38	0.00	0.38			
Sat Flow, veh/h	1739	3561	0	0	3561	1547	1739	0	1547			
Grp Volume(v), veh/h	348	402	0	0	446	0	587	0	87			
Grp Sat Flow(s), veh/h/ln	1739	1735	0	0	1735	1547	1739	0	1547			
Q Serve(g_s), s	12.2	5.9	0.0	0.0	9.7	0.0	25.7	0.0	3.0			
Cycle Q Clear(g_c), s	12.2	5.9	0.0	0.0	9.7	0.0	25.7	0.0	3.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	476	1541	0	0	645		654	0	582			
V/C Ratio(X)	0.73	0.26	0.00	0.00	0.69		0.90	0.00	0.15			
Avail Cap(c_a), veh/h	997	3585	0	0	1651		799	0	711			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	19.6	14.1	0.0	0.0	30.7	0.0	23.7	0.0	16.6			
Incr Delay (d2), s/veh	2.2	0.1	0.0	0.0	1.3	0.0	11.3	0.0	0.1			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%), veh/ln	4.6	2.0	0.0	0.0	3.9	0.0	11.3	0.0	1.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	21.8	14.2	0.0	0.0	32.0	0.0	35.0	0.0	16.8			
LnGrp LOS	C	B	A	A	C		C	A	B			
Approach Vol, veh/h	750			446			674					
Approach Delay, s/veh	17.7			32.0			32.6					
Approach LOS	B			C			C					
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	20.8	21.6		38.3		42.4						
Change Period (Y+Rc), s	5.7	6.6		7.9		6.6						
Max Green Setting (Gmax), s	39.3	38.4		37.1		83.4						
Max Q Clear Time (g_c+14.2), s	11.2	11.7		27.7		7.9						
Green Ext Time (p_c), s	1.0	2.7		2.7		2.6						

Intersection Summary

HCM 6th Ctrl Delay 26.5
 HCM 6th LOS C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	110	340	820	50	20	60
Future Vol, veh/h	110	340	820	50	20	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	166	-	-	280	0	160
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	120	370	891	54	22	65
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	945	0	-	0	1316	446
Stage 1	-	-	-	-	891	-
Stage 2	-	-	-	-	425	-
Critical Hdwy	4.2	-	-	-	6.9	7
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	2.25	-	-	-	3.55	3.35
Pot Cap-1 Maneuver	704	-	-	-	145	552
Stage 1	-	-	-	-	354	-
Stage 2	-	-	-	-	619	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	704	-	-	-	120	552
Mov Cap-2 Maneuver	-	-	-	-	120	-
Stage 1	-	-	-	-	294	-
Stage 2	-	-	-	-	619	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.7	0		19.7		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	704	-	-	-	120	552
HCM Lane V/C Ratio	0.17	-	-	-	0.181	0.118
HCM Control Delay (s)	11.2	-	-	-	41.5	12.4
HCM Lane LOS	B	-	-	-	E	B
HCM 95th %tile Q(veh)	0.6	-	-	-	0.6	0.4

Intersection						
Int Delay, s/veh	0					
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	0	80	160	0	0	0
Future Vol, veh/h	0	80	160	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	87	174	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	174	0	-	0	261	174
Stage 1	-	-	-	-	174	-
Stage 2	-	-	-	-	87	-
Critical Hdwy	4.15	-	-	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	2.245	-	-	-	3.545	3.345
Pot Cap-1 Maneuver	1385	-	-	-	721	862
Stage 1	-	-	-	-	849	-
Stage 2	-	-	-	-	929	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1385	-	-	-	721	862
Mov Cap-2 Maneuver	-	-	-	-	721	-
Stage 1	-	-	-	-	849	-
Stage 2	-	-	-	-	929	-
Approach	SE	NW		SW		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt		NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)		-	-	1385	-	-
HCM Lane V/C Ratio		-	-	-	-	-
HCM Control Delay (s)		-	-	0	-	0
HCM Lane LOS		-	-	A	-	A
HCM 95th %tile Q(veh)		-	-	0	-	-

2026 AM Build LOS Results

HCM 6th Signalized Intersection Summary

1: SB On Ramp/SB Off Street & Kearns Blvd

11/03/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↗	↑↑						↖	↖
Traffic Volume (veh/h)	0	426	120	55	906	0	0	0	0	276	0	590
Future Volume (veh/h)	0	426	120	55	906	0	0	0	0	276	0	590
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1826	1826	1826	1826	0				1826	1826	1826
Adj Flow Rate, veh/h	0	463	0	60	985	0				300	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	5	5	5	5	0				5	5	5
Cap, veh/h	0	1103		446	1693	0				404	0	
Arrive On Green	0.00	0.32	0.00	0.06	0.49	0.00				0.23	0.00	0.00
Sat Flow, veh/h	0	3561	1547	1739	3561	0				1739	0	1547
Grp Volume(v), veh/h	0	463	0	60	985	0				300	0	0
Grp Sat Flow(s),veh/h/ln	0	1735	1547	1739	1735	0				1739	0	1547
Q Serve(g_s), s	0.0	5.0	0.0	1.0	9.6	0.0				7.6	0.0	0.0
Cycle Q Clear(g_c), s	0.0	5.0	0.0	1.0	9.6	0.0				7.6	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1103		446	1693	0				404	0	
V/C Ratio(X)	0.00	0.42		0.13	0.58	0.00				0.74	0.00	
Avail Cap(c_a), veh/h	0	2442		1072	4280	0				1239	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	12.7	0.0	8.8	8.6	0.0				16.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.1	0.3	0.0				2.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.5	0.0	0.3	2.2	0.0				2.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.9	0.0	9.0	9.0	0.0				19.5	0.0	0.0
LnGrp LOS	A	B		A	A	A				B	A	
Approach Vol, veh/h		463	A		1045						300	A
Approach Delay, s/veh		12.9			9.0						19.5	
Approach LOS		B			A						B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		29.8			8.0	21.8		17.3				
Change Period (Y+Rc), s		6.8			* 5.3	6.8		6.4				
Max Green Setting (Gmax), s		58.2			* 20	33.2		33.6				
Max Q Clear Time (g_c+I1), s		11.6			3.0	7.0		9.6				
Green Ext Time (p_c), s		7.9			0.1	2.9		1.6				
Intersection Summary												
HCM 6th Ctrl Delay			11.7									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary

2: SB Off Ramp/NB On Ramp & Kearns Blvd

11/03/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	320	382	0	0	421	471	540	0	130	0	0	0
Future Volume (veh/h)	320	382	0	0	421	471	540	0	130	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1826	1826	1826	1826	1826			
Adj Flow Rate, veh/h	348	415	0	0	458	0	587	0	141			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	471	1539	0	0	643		656	0	584			
Arrive On Green	0.19	0.44	0.00	0.00	0.19	0.00	0.38	0.00	0.38			
Sat Flow, veh/h	1739	3561	0	0	3561	1547	1739	0	1547			
Grp Volume(v), veh/h	348	415	0	0	458	0	587	0	141			
Grp Sat Flow(s),veh/h/ln	1739	1735	0	0	1735	1547	1739	0	1547			
Q Serve(g_s), s	12.2	6.1	0.0	0.0	10.0	0.0	25.7	0.0	5.1			
Cycle Q Clear(g_c), s	12.2	6.1	0.0	0.0	10.0	0.0	25.7	0.0	5.1			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	471	1539	0	0	643		656	0	584			
V/C Ratio(X)	0.74	0.27	0.00	0.00	0.71		0.89	0.00	0.24			
Avail Cap(c_a), veh/h	990	3576	0	0	1647		797	0	710			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	19.7	14.2	0.0	0.0	30.9	0.0	23.7	0.0	17.3			
Incr Delay (d2), s/veh	2.3	0.1	0.0	0.0	1.5	0.0	11.1	0.0	0.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.6	2.1	0.0	0.0	4.0	0.0	11.2	0.0	1.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.0	14.3	0.0	0.0	32.4	0.0	34.8	0.0	17.5			
LnGrp LOS	C	B	A	A	C		C	A	B			
Approach Vol, veh/h	763			458			A			728		
Approach Delay, s/veh	17.8			32.4			31.4					
Approach LOS	B			C			C					
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	20.9	21.6		38.4		42.5						
Change Period (Y+Rc), s	5.7	6.6		7.9		6.6						
Max Green Setting (Gmax), s	39.3	38.4		37.1		83.4						
Max Q Clear Time (g_c+I1), s	14.2	12.0		27.7		8.1						
Green Ext Time (p_c), s	1.0	2.8		2.8		2.7						
Intersection Summary												
HCM 6th Ctrl Delay			26.3									
HCM 6th LOS			C									
Notes												

HCM 6th TWSC
3: Kearns Blvd & Old Hwy 40

11/03/2020

Intersection

Int Delay, s/veh 2.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	172	340	820	53	20	72
Future Vol, veh/h	172	340	820	53	20	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	166	-	-	280	0	160
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	187	370	891	58	22	78

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	949	0	0 1450 446
Stage 1	-	-	- 891 -
Stage 2	-	-	- 559 -
Critical Hdwy	4.2	-	- 6.9 7
Critical Hdwy Stg 1	-	-	- 5.9 -
Critical Hdwy Stg 2	-	-	- 5.9 -
Follow-up Hdwy	2.25	-	- 3.55 3.35
Pot Cap-1 Maneuver	701	-	- 118 552
Stage 1	-	-	- 354 -
Stage 2	-	-	- 528 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	701	-	- 86 552
Mov Cap-2 Maneuver	-	-	- 86 -
Stage 1	-	-	- 259 -
Stage 2	-	-	- 528 -

Approach	EB	WB	SB
HCM Control Delay, s	4	0	23
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	701	-	-	-	86	552
HCM Lane V/C Ratio	0.267	-	-	-	0.253	0.142
HCM Control Delay (s)	12	-	-	-	60.5	12.6
HCM Lane LOS	B	-	-	-	F	B
HCM 95th %tile Q(veh)	1.1	-	-	-	0.9	0.5

Intersection												
Int Delay, s/veh	1.3											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	0	89	0	50	175	0	0	0	3	0	0	0
Future Vol, veh/h	0	89	0	50	175	0	0	0	3	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	97	0	54	190	0	0	0	3	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	190	0	-	97	0	0	395	395	97	397	395	190
Stage 1	-	-	-	-	-	-	97	97	-	298	298	-
Stage 2	-	-	-	-	-	-	298	298	-	99	97	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1366	-	0	1478	-	-	559	537	951	558	537	844
Stage 1	-	-	0	-	-	-	902	809	-	704	662	-
Stage 2	-	-	0	-	-	-	704	662	-	900	809	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1366	-	-	1478	-	-	542	515	951	538	515	844
Mov Cap-2 Maneuver	-	-	-	-	-	-	542	515	-	538	515	-
Stage 1	-	-	-	-	-	-	902	809	-	704	635	-
Stage 2	-	-	-	-	-	-	675	635	-	897	809	-
Approach	SE			NW			NE			SW		
HCM Control Delay, s	0			1.7			8.8			0		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NELn1NELn2		NWL	NWT	NWR	SEL	SETSWLn1SWLn2					
Capacity (veh/h)	- 951		1478	-	-	1366	- - -					
HCM Lane V/C Ratio	- 0.003		0.037	-	-	-	- - -					
HCM Control Delay (s)	0 8.8		7.5	0	-	0	- 0 0					
HCM Lane LOS	A A		A A	-	-	A	- A A					
HCM 95th %tile O(veh)	- 0		0.1	-	-	0	- - -					

Intersection

Int Delay, s/veh 0.4

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	86	0	9	166	0	3
Future Vol, veh/h	86	0	9	166	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	93	0	10	180	0	3

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	93
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.15
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.245
Pot Cap-1 Maneuver	-	-	1483
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1483
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SE	NW	NE
HCM Control Delay, s	0	0.4	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	SET	SER
Capacity (veh/h)	-	956	1483	-	-	-
HCM Lane V/C Ratio	-	0.003	0.007	-	-	-
HCM Control Delay (s)	0	8.8	7.4	0	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	-	0	0	-	-	-

Intersection

Int Delay, s/veh 0.2

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	86	0	6	160	0	0
Future Vol, veh/h	86	0	6	160	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	93	0	7	174	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	93
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.15
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.245
Pot Cap-1 Maneuver	-	-	1483
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1483
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SE	NW	NE
HCM Control Delay, s	0	0.3	0
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	-	1483	-	-	-
HCM Lane V/C Ratio	-	0.004	-	-	-
HCM Control Delay (s)	0	7.4	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-	-

Intersection

Int Delay, s/veh 0.2

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	80	0	0	160	0	6
Future Vol, veh/h	80	0	0	160	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	87	0	0	174	0	7

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	87
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.15
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.245
Pot Cap-1 Maneuver	-	-	1490
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1490
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SE	NW	NE
HCM Control Delay, s	0	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	963	1490	-	-	-
HCM Lane V/C Ratio	0.007	-	-	-	-
HCM Control Delay (s)	8.8	0	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	0	0	-	-	-

2026 AM Build Mitigation 1 LOS Results

HCM 6th Signalized Intersection Summary

1: SB On Ramp/SB Off Street & Kearns Blvd

10/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↑	↑
Traffic Volume (veh/h)	0	426	120	55	906	0	0	0	0	273	0	590
Future Volume (veh/h)	0	426	120	55	906	0	0	0	0	273	0	590
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No						No		
Adj Sat Flow, veh/h/ln	0	1826	1826	1826	1826	0				1826	1826	1826
Adj Flow Rate, veh/h	0	463	0	60	985	0				297	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	5	5	5	5	0				5	5	5
Cap, veh/h	0	1106		448	1697	0				400	0	
Arrive On Green	0.00	0.32	0.00	0.06	0.49	0.00				0.23	0.00	0.00
Sat Flow, veh/h	0	3561	1547	1739	3561	0				1739	0	1547
Grp Volume(v), veh/h	0	463	0	60	985	0				297	0	0
Grp Sat Flow(s),veh/h/ln	0	1735	1547	1739	1735	0				1739	0	1547
Q Serve(g_s), s	0.0	4.9	0.0	1.0	9.5	0.0				7.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	4.9	0.0	1.0	9.5	0.0				7.5	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1106		448	1697	0				400	0	
V/C Ratio(X)	0.00	0.42		0.13	0.58	0.00				0.74	0.00	
Avail Cap(c_a), veh/h	0	2448		1075	4292	0				1242	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	12.6	0.0	8.8	8.6	0.0				16.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.1	0.3	0.0				2.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.5	0.0	0.3	2.2	0.0				2.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.8	0.0	8.9	8.9	0.0				19.5	0.0	0.0
LnGrp LOS	A	B		A	A	A				B	A	
Approach Vol, veh/h		463	A		1045						297	A
Approach Delay, s/veh		12.8			8.9						19.5	
Approach LOS		B			A						B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		29.8			8.0	21.8		17.2				
Change Period (Y+Rc), s		6.8			* 5.3	6.8		6.4				
Max Green Setting (Gmax), s		58.2			* 20	33.2		33.6				
Max Q Clear Time (g_c+I1), s		11.5			3.0	6.9		9.5				
Green Ext Time (p_c), s		7.9			0.1	2.9		1.6				

Intersection Summary

HCM 6th Ctrl Delay 11.7
 HCM 6th LOS B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

2: SB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	379	0	0	421	470	540	0	127	0	0	0
Future Volume (veh/h)	320	379	0	0	421	470	540	0	127	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1826	1826	1826	1826	1826			
Adj Flow Rate, veh/h	348	412	0	0	458	0	587	0	138			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	471	1539	0	0	643		656	0	584			
Arrive On Green	0.19	0.44	0.00	0.00	0.19	0.00	0.38	0.00	0.38			
Sat Flow, veh/h	1739	3561	0	0	3561	1547	1739	0	1547			
Grp Volume(v), veh/h	348	412	0	0	458	0	587	0	138			
Grp Sat Flow(s), veh/h/ln	1739	1735	0	0	1735	1547	1739	0	1547			
Q Serve(g_s), s	12.2	6.1	0.0	0.0	10.0	0.0	25.7	0.0	4.9			
Cycle Q Clear(g_c), s	12.2	6.1	0.0	0.0	10.0	0.0	25.7	0.0	4.9			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	471	1539	0	0	643		656	0	584			
V/C Ratio(X)	0.74	0.27	0.00	0.00	0.71		0.89	0.00	0.24			
Avail Cap(c_a), veh/h	990	3577	0	0	1647		798	0	710			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	19.7	14.2	0.0	0.0	30.9	0.0	23.7	0.0	17.2			
Incr Delay (d2), s/veh	2.3	0.1	0.0	0.0	1.5	0.0	11.1	0.0	0.2			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%), veh/ln	4.6	2.1	0.0	0.0	4.0	0.0	11.3	0.0	1.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	22.0	14.3	0.0	0.0	32.4	0.0	34.8	0.0	17.4			
LnGrp LOS	C	B	A	A	C		C	A	B			
Approach Vol, veh/h	760			458			725					
Approach Delay, s/veh	17.8			32.4			31.5					
Approach LOS	B			C			C					
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	20.9	21.6		38.4		42.5						
Change Period (Y+Rc), s	5.7	6.6		7.9		6.6						
Max Green Setting (Gmax), s	39.3	38.4		37.1		83.4						
Max Q Clear Time (g_c+14.2), s	14.2	12.0		27.7		8.1						
Green Ext Time (p_c), s	1.0	2.8		2.8		2.7						

Intersection Summary

HCM 6th Ctrl Delay 26.4
 HCM 6th LOS C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	2.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	166	340	820	59	21	71
Future Vol, veh/h	166	340	820	59	21	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	166	-	-	280	0	160
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	180	370	891	64	23	77
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	955	0	-	0	1436	446
Stage 1	-	-	-	-	891	-
Stage 2	-	-	-	-	545	-
Critical Hdwy	4.2	-	-	-	6.9	7
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	2.25	-	-	-	3.55	3.35
Pot Cap-1 Maneuver	697	-	-	-	121	552
Stage 1	-	-	-	-	354	-
Stage 2	-	-	-	-	537	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	697	-	-	-	90	552
Mov Cap-2 Maneuver	-	-	-	-	90	-
Stage 1	-	-	-	-	263	-
Stage 2	-	-	-	-	537	-
Approach	EB	WB		SB		
HCM Control Delay, s	3.9	0		23		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	697	-	-	-	90	552
HCM Lane V/C Ratio	0.259	-	-	-	0.254	0.14
HCM Control Delay (s)	12	-	-	-	58.1	12.6
HCM Lane LOS	B	-	-	-	F	B
HCM 95th %tile Q(veh)	1	-	-	-	0.9	0.5

Intersection												
Int Delay, s/veh	1.3											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Vol, veh/h	0	89	0	50	175	0	0	0	3	0	0	0
Future Vol, veh/h	0	89	0	50	175	0	0	0	3	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	97	0	54	190	0	0	0	3	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	190	0	-	97	0	0	395	395	97	397	395	190
Stage 1	-	-	-	-	-	-	97	97	-	298	298	-
Stage 2	-	-	-	-	-	-	298	298	-	99	97	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1366	-	0	1478	-	-	559	537	951	558	537	844
Stage 1	-	-	0	-	-	-	902	809	-	704	662	-
Stage 2	-	-	0	-	-	-	704	662	-	900	809	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1366	-	-	1478	-	-	542	515	951	538	515	844
Mov Cap-2 Maneuver	-	-	-	-	-	-	542	515	-	538	515	-
Stage 1	-	-	-	-	-	-	902	809	-	704	635	-
Stage 2	-	-	-	-	-	-	675	635	-	897	809	-
Approach	SE			NW			NE			SW		
HCM Control Delay, s	0			1.7			8.8			0		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NELn1NELn2		NWL	NWT	NWR	SEL	SETSWLn1SWLn2					
Capacity (veh/h)	- 951		1478	-	-	1366	- -		-	-	-	-
HCM Lane V/C Ratio	- 0.003		0.037	-	-	-	- -		-	-	-	-
HCM Control Delay (s)	0 8.8		7.5	0	-	0	- 0		0	0		
HCM Lane LOS	A A		A	A	-	A	- A		A	A		
HCM 95th %tile Q(veh)	- 0		0.1	-	-	0	- -		-	-	-	-

Intersection						
Int Delay, s/veh	0.4					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	86	0	9	166	0	3
Future Vol, veh/h	86	0	9	166	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	93	0	10	180	0	3
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	93	0	293	93
Stage 1	-	-	-	-	93	-
Stage 2	-	-	-	-	200	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1483	-	692	956
Stage 1	-	-	-	-	923	-
Stage 2	-	-	-	-	827	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1483	-	687	956
Mov Cap-2 Maneuver	-	-	-	-	687	-
Stage 1	-	-	-	-	923	-
Stage 2	-	-	-	-	821	-
Approach	SE	NW		NE		
HCM Control Delay, s	0	0.4		8.8		
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	SET	SER
Capacity (veh/h)	-	956	1483	-	-	-
HCM Lane V/C Ratio	-	0.003	0.007	-	-	-
HCM Control Delay (s)	0	8.8	7.4	0	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	-	0	0	-	-	-

Intersection

Int Delay, s/veh 0.2

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	86	0	6	160	0	0
Future Vol, veh/h	86	0	6	160	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	93	0	7	174	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	93
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.15
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.245
Pot Cap-1 Maneuver	-	-	1483
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1483
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SE	NW	NE
HCM Control Delay, s	0	0.3	0
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	-	1483	-	-	-
HCM Lane V/C Ratio	-	0.004	-	-	-
HCM Control Delay (s)	0	7.4	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-	-

Intersection						
Int Delay, s/veh	0.2					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	80	0	0	160	0	6
Future Vol, veh/h	80	0	0	160	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	87	0	0	174	0	7
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	87	0	261	87
Stage 1	-	-	-	-	87	-
Stage 2	-	-	-	-	174	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1490	-	721	963
Stage 1	-	-	-	-	929	-
Stage 2	-	-	-	-	849	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1490	-	721	963
Mov Cap-2 Maneuver	-	-	-	-	721	-
Stage 1	-	-	-	-	929	-
Stage 2	-	-	-	-	849	-
Approach	SE	NW		NE		
HCM Control Delay, s	0	0		8.8		
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	963	1490	-	-	-	
HCM Lane V/C Ratio	0.007	-	-	-	-	
HCM Control Delay (s)	8.8	0	-	-	-	
HCM Lane LOS	A	A	-	-	-	
HCM 95th %tile Q(veh)	0	0	-	-	-	

2026 AM Build Mitigation 2 LOS Results

HCM 6th Signalized Intersection Summary

1: SB On Ramp/SB Off Street & Kearns Blvd

10/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↗	↖	↑↑						↗	↖	
Traffic Volume (veh/h)	0	426	120	55	906	0	0	0	0	273	0	590	
Future Volume (veh/h)	0	426	120	55	906	0	0	0	0	273	0	590	
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00	
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	0	1826	1826	1826	1826	0				1826	1826	1826	
Adj Flow Rate, veh/h	0	463	0	60	985	0				297	0	0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92	
Percent Heavy Veh, %	0	5	5	5	5	0				5	5	5	
Cap, veh/h	0	1104		447	1695	0				402	0		
Arrive On Green	0.00	0.32	0.00	0.06	0.49	0.00				0.23	0.00	0.00	
Sat Flow, veh/h	0	3561	1547	1739	3561	0				1739	0	1547	
Grp Volume(v), veh/h	0	463	0	60	985	0				297	0	0	
Grp Sat Flow(s),veh/h/ln	0	1735	1547	1739	1735	0				1739	0	1547	
Q Serve(g_s), s	0.0	4.9	0.0	1.0	9.6	0.0				7.5	0.0	0.0	
Cycle Q Clear(g_c), s	0.0	4.9	0.0	1.0	9.6	0.0				7.5	0.0	0.0	
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00	
Lane Grp Cap(c), veh/h	0	1104		447	1695	0				402	0		
V/C Ratio(X)	0.00	0.42		0.13	0.58	0.00				0.74	0.00		
Avail Cap(c_a), veh/h	0	3033		594	3917	0				1425	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00	
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	0.00	
Uniform Delay (d), s/veh	0.0	12.6	0.0	8.8	8.6	0.0				16.8	0.0	0.0	
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.1	0.3	0.0				2.7	0.0	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.0	1.5	0.0	0.3	2.2	0.0				2.6	0.0	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	0.0	12.9	0.0	8.9	8.9	0.0				19.5	0.0	0.0	
LnGrp LOS	A	B		A	A	A				B	A		
Approach Vol, veh/h	463		A		1045						297		A
Approach Delay, s/veh	12.9				8.9						19.5		
Approach LOS	B				A						B		
Timer - Assigned Phs	2				5		6		8				
Phs Duration (G+Y+Rc), s	29.8				8.0		21.8		17.3				
Change Period (Y+Rc), s	6.8				* 5.3		6.8		6.4				
Max Green Setting (Gmax), s	53.2				* 6.7		41.2		38.6				
Max Q Clear Time (g_c+l1), s	11.6				3.0		6.9		9.5				
Green Ext Time (p_c), s	7.8				0.0		3.0		1.7				

Intersection Summary

HCM 6th Ctrl Delay 11.7

HCM 6th LOS B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

2: SB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↱	↑↑			↑↑	↰		↰	↰			
Traffic Volume (veh/h)	320	379	0	0	421	470	540	0	127	0	0	0
Future Volume (veh/h)	320	379	0	0	421	470	540	0	127	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1826	1826	1826	1826	1826			
Adj Flow Rate, veh/h	348	412	0	0	458	0	587	0	138			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	465	1431	0	0	690		687	0	611			
Arrive On Green	0.14	0.41	0.00	0.00	0.20	0.00	0.40	0.00	0.40			
Sat Flow, veh/h	3374	3561	0	0	3561	1547	1739	0	1547			
Grp Volume(v), veh/h	348	412	0	0	458	0	587	0	138			
Grp Sat Flow(s), veh/h/ln	1687	1735	0	0	1735	1547	1739	0	1547			
Q Serve(g_s), s	7.5	6.0	0.0	0.0	9.2	0.0	23.2	0.0	4.5			
Cycle Q Clear(g_c), s	7.5	6.0	0.0	0.0	9.2	0.0	23.2	0.0	4.5			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	465	1431	0	0	690		687	0	611			
V/C Ratio(X)	0.75	0.29	0.00	0.00	0.66		0.85	0.00	0.23			
Avail Cap(c_a), veh/h	953	2550	0	0	1307		1502	0	1336			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	31.2	14.8	0.0	0.0	27.9	0.0	20.8	0.0	15.1			
Incr Delay (d2), s/veh	2.4	0.1	0.0	0.0	1.1	0.0	3.2	0.0	0.2			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%), veh/ln	3.0	2.1	0.0	0.0	3.6	0.0	8.7	0.0	1.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	33.7	14.9	0.0	0.0	29.0	0.0	24.0	0.0	15.3			
LnGrp LOS	C	B	A	A	C		C	A	B			
Approach Vol, veh/h	760			458			725					
Approach Delay, s/veh	23.5			29.0			22.3					
Approach LOS	C			C			C					
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	16.1	21.6		37.7		37.7						
Change Period (Y+Rc), s	5.7	6.6		7.9		6.6						
Max Green Setting (Gmax), s	24.3	28.4		65.1		55.4						
Max Q Clear Time (g_c+I), s	19.5	11.2		25.2		8.0						
Green Ext Time (p_c), s	0.9	2.5		4.5		2.7						

Intersection Summary

HCM 6th Ctrl Delay	24.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	2.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	166	340	820	59	21	71
Future Vol, veh/h	166	340	820	59	21	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	166	-	-	280	0	160
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	180	370	891	64	23	77
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	955	0	-	0	1436	446
Stage 1	-	-	-	-	891	-
Stage 2	-	-	-	-	545	-
Critical Hdwy	4.2	-	-	-	6.9	7
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	2.25	-	-	-	3.55	3.35
Pot Cap-1 Maneuver	697	-	-	-	121	552
Stage 1	-	-	-	-	354	-
Stage 2	-	-	-	-	537	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	697	-	-	-	90	552
Mov Cap-2 Maneuver	-	-	-	-	90	-
Stage 1	-	-	-	-	263	-
Stage 2	-	-	-	-	537	-
Approach	EB	WB		SB		
HCM Control Delay, s	3.9	0		23		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	697	-	-	-	90	552
HCM Lane V/C Ratio	0.259	-	-	-	0.254	0.14
HCM Control Delay (s)	12	-	-	-	58.1	12.6
HCM Lane LOS	B	-	-	-	F	B
HCM 95th %tile Q(veh)	1	-	-	-	0.9	0.5

Intersection												
Int Delay, s/veh	1.3											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Vol, veh/h	0	89	0	50	175	0	0	0	3	0	0	0
Future Vol, veh/h	0	89	0	50	175	0	0	0	3	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	97	0	54	190	0	0	0	3	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	190	0	-	97	0	0	395	395	97	397	395	190
Stage 1	-	-	-	-	-	-	97	97	-	298	298	-
Stage 2	-	-	-	-	-	-	298	298	-	99	97	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1366	-	0	1478	-	-	559	537	951	558	537	844
Stage 1	-	-	0	-	-	-	902	809	-	704	662	-
Stage 2	-	-	0	-	-	-	704	662	-	900	809	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1366	-	-	1478	-	-	542	515	951	538	515	844
Mov Cap-2 Maneuver	-	-	-	-	-	-	542	515	-	538	515	-
Stage 1	-	-	-	-	-	-	902	809	-	704	635	-
Stage 2	-	-	-	-	-	-	675	635	-	897	809	-
Approach	SE			NW			NE			SW		
HCM Control Delay, s	0			1.7			8.8			0		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NELn1NELn2		NWL	NWT	NWR	SEL	SETSWLn1SWLn2					
Capacity (veh/h)	-	951	1478	-	-	1366	-	-	-	-	-	-
HCM Lane V/C Ratio	-	0.003	0.037	-	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	8.8	7.5	0	-	0	-	0	0	-	-	-
HCM Lane LOS	A	A	A	A	-	A	-	A	A	-	-	-
HCM 95th %tile Q(veh)	-	0	0.1	-	-	0	-	-	-	-	-	-

Intersection						
Int Delay, s/veh	0.4					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	86	0	9	166	0	3
Future Vol, veh/h	86	0	9	166	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	93	0	10	180	0	3
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	93	0	293	93
Stage 1	-	-	-	-	93	-
Stage 2	-	-	-	-	200	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1483	-	692	956
Stage 1	-	-	-	-	923	-
Stage 2	-	-	-	-	827	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1483	-	687	956
Mov Cap-2 Maneuver	-	-	-	-	687	-
Stage 1	-	-	-	-	923	-
Stage 2	-	-	-	-	821	-
Approach	SE	NW		NE		
HCM Control Delay, s	0	0.4		8.8		
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	SET	SER
Capacity (veh/h)	-	956	1483	-	-	-
HCM Lane V/C Ratio	-	0.003	0.007	-	-	-
HCM Control Delay (s)	0	8.8	7.4	0	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	-	0	0	-	-	-

Intersection

Int Delay, s/veh 0.2

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	86	0	6	160	0	0
Future Vol, veh/h	86	0	6	160	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	93	0	7	174	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	93
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.15
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.245
Pot Cap-1 Maneuver	-	-	1483
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1483
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SE	NW	NE
HCM Control Delay, s	0	0.3	0
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	-	1483	-	-	-
HCM Lane V/C Ratio	-	0.004	-	-	-
HCM Control Delay (s)	0	7.4	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-	-

Intersection

Int Delay, s/veh 0.2

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	80	0	0	160	0	6
Future Vol, veh/h	80	0	0	160	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	87	0	0	174	0	7

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	87
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.15
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.245
Pot Cap-1 Maneuver	-	-	1490
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1490
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SE	NW	NE
HCM Control Delay, s	0	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	963	1490	-	-	-
HCM Lane V/C Ratio	0.007	-	-	-	-
HCM Control Delay (s)	8.8	0	-	-	-
HCM Lane LOS	A	A	-	-	-
HCM 95th %tile Q(veh)	0	0	-	-	-

2026 PM No Build LOS Results

HCM 6th Signalized Intersection Summary 1: SB On Ramp/SB Off Ramp & Kearns Blvd

10/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↑	↑
Traffic Volume (veh/h)	0	1190	610	120	400	0	0	0	0	530	0	500
Future Volume (veh/h)	0	1190	610	120	400	0	0	0	0	530	0	500
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1826	1826	1826	1826	0				1826	1826	1826
Adj Flow Rate, veh/h	0	1293	0	130	435	0				576	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	5	5	5	5	0				5	5	5
Cap, veh/h	0	1360		192	1757	0				628	0	
Arrive On Green	0.00	0.39	0.00	0.12	1.00	0.00				0.36	0.00	0.00
Sat Flow, veh/h	0	3561	1547	1739	3561	0				1739	0	1547
Grp Volume(v), veh/h	0	1293	0	130	435	0				576	0	0
Grp Sat Flow(s),veh/h/ln	0	1735	1547	1739	1735	0				1739	0	1547
Q Serve(g_s), s	0.0	36.1	0.0	4.3	0.0	0.0				31.6	0.0	0.0
Cycle Q Clear(g_c), s	0.0	36.1	0.0	4.3	0.0	0.0				31.6	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1360		192	1757	0				628	0	
V/C Ratio(X)	0.00	0.95		0.68	0.25	0.00				0.92	0.00	
Avail Cap(c_a), veh/h	0	1360		201	1757	0				758	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.96	0.96	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	29.5	0.0	21.8	0.0	0.0				30.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	15.2	0.0	8.0	0.3	0.0				14.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	16.6	0.0	1.9	0.1	0.0				14.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	44.7	0.0	29.7	0.3	0.0				44.7	0.0	0.0
LnGrp LOS	A	D		C	A	A				D	A	
Approach Vol, veh/h		1293	A		565						576	A
Approach Delay, s/veh		44.7			7.1						44.7	
Approach LOS		D			A						D	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		57.5			11.5	46.0		42.5				
Change Period (Y+Rc), s		6.8			* 5.3	6.8		6.4				
Max Green Setting (Gmax), s		43.2			* 6.7	31.2		43.6				
Max Q Clear Time (g_c+l1), s		2.0			6.3	38.1		33.6				
Green Ext Time (p_c), s		2.8			0.0	0.0		2.5				

Intersection Summary

HCM 6th Ctrl Delay 35.9
HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

2: NB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑			↑↑	↰		↰	↰			
Traffic Volume (veh/h)	770	950	0	0	290	370	230	0	60	0	0	0
Future Volume (veh/h)	770	950	0	0	290	370	230	0	60	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1826	1826	1826	1826	1826			
Adj Flow Rate, veh/h	837	1033	0	0	315	0	250	0	65			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	884	2375	0	0	812		296	0	264			
Arrive On Green	0.77	1.00	0.00	0.00	0.23	0.00	0.17	0.00	0.17			
Sat Flow, veh/h	1739	3561	0	0	3561	1547	1739	0	1547			
Grp Volume(v), veh/h	837	1033	0	0	315	0	250	0	65			
Grp Sat Flow(s), veh/h/ln	1739	1735	0	0	1735	1547	1739	0	1547			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	7.6	0.0	13.9	0.0	3.6			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	7.6	0.0	13.9	0.0	3.6			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	884	2375	0	0	812		296	0	264			
V/C Ratio(X)	0.95	0.43	0.00	0.00	0.39		0.84	0.00	0.25			
Avail Cap(c_a), veh/h	884	2375	0	0	812		471	0	419			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	5.9	0.0	0.0	0.0	32.3	0.0	40.2	0.0	35.9			
Incr Delay (d2), s/veh	2.7	0.1	0.0	0.0	1.4	0.0	7.8	0.0	0.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.9	0.0	0.0	0.0	3.2	0.0	6.3	0.0	1.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.6	0.1	0.0	0.0	33.7	0.0	47.9	0.0	36.4			
LnGrp LOS	A	A	A	A	C		D	A	D			
Approach Vol, veh/h	1870			315			315					
Approach Delay, s/veh	3.9			33.7			45.6					
Approach LOS	A			C			D					
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	45.1	30.0		24.9		75.1						
Change Period (Y+Rc), s	6.6	* 6.6		7.9		6.6						
Max Green Setting (Gmax), s	29.3	* 23		27.1		58.4						
Max Q Clear Time (g_c+I), s	12.0	9.6		15.9		2.0						
Green Ext Time (p_c), s	3.2	1.5		1.1		8.6						

Intersection Summary

HCM 6th Ctrl Delay 12.9

HCM 6th LOS B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	5.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	80	930	510	30	100	150
Future Vol, veh/h	80	930	510	30	100	150
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	166	-	-	280	0	160
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	87	1011	554	33	109	163
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	587	0	-	0	1234	277
Stage 1	-	-	-	-	554	-
Stage 2	-	-	-	-	680	-
Critical Hdwy	4.2	-	-	-	6.9	7
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	2.25	-	-	-	3.55	3.35
Pot Cap-1 Maneuver	964	-	-	-	165	711
Stage 1	-	-	-	-	531	-
Stage 2	-	-	-	-	457	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	964	-	-	-	150	711
Mov Cap-2 Maneuver	-	-	-	-	150	-
Stage 1	-	-	-	-	483	-
Stage 2	-	-	-	-	457	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.7	0		37		
HCM LOS	E					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	964	-	-	-	150	711
HCM Lane V/C Ratio	0.09	-	-	-	0.725	0.229
HCM Control Delay (s)	9.1	-	-	-	75	11.6
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	0.3	-	-	-	4.3	0.9

Intersection						
Int Delay, s/veh	0					
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	0	250	110	0	0	0
Future Vol, veh/h	0	250	110	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	0	272	120	0	0	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	120	0	-	0	392	120
Stage 1	-	-	-	-	120	-
Stage 2	-	-	-	-	272	-
Critical Hdwy	4.15	-	-	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	2.245	-	-	-	3.545	3.345
Pot Cap-1 Maneuver	1449	-	-	-	606	923
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	767	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1449	-	-	-	606	923
Mov Cap-2 Maneuver	-	-	-	-	606	-
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	767	-
Approach	SE	NW		SW		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt		NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)		-	-	1449	-	-
HCM Lane V/C Ratio		-	-	-	-	-
HCM Control Delay (s)		-	-	0	-	0
HCM Lane LOS		-	-	A	-	A
HCM 95th %tile Q(veh)		-	-	0	-	-

2026 PM Build LOS Results

HCM 6th Signalized Intersection Summary

1: SB On Ramp/SB Off Ramp & Kearns Blvd

11/03/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↖	↑↑						↖	↗
Traffic Volume (veh/h)	0	1196	610	196	406	0	0	0	0	531	0	500
Future Volume (veh/h)	0	1196	610	196	406	0	0	0	0	531	0	500
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1826	1826	1826	1826	0				1826	1826	1826
Adj Flow Rate, veh/h	0	1300	663	213	441	0				577	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	5	5	5	5	0				5	5	5
Cap, veh/h	0	1367	610	227	1846	0				584	0	
Arrive On Green	0.00	0.39	0.39	0.17	1.00	0.00				0.34	0.00	0.00
Sat Flow, veh/h	0	3561	1547	1739	3561	0				1739	0	1547
Grp Volume(v), veh/h	0	1300	663	213	441	0				577	0	0
Grp Sat Flow(s),veh/h/ln	0	1735	1547	1739	1735	0				1739	0	1547
Q Serve(g_s), s	0.0	36.3	39.4	7.5	0.0	0.0				33.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	36.3	39.4	7.5	0.0	0.0				33.0	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1367	610	227	1846	0				584	0	
V/C Ratio(X)	0.00	0.95	1.09	0.94	0.24	0.00				0.99	0.00	
Avail Cap(c_a), veh/h	0	1367	610	227	1846	0				584	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.81	0.81	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	29.4	30.3	21.1	0.0	0.0				33.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	15.2	62.5	38.0	0.2	0.0				33.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	16.7	23.9	4.6	0.1	0.0				18.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	44.5	92.8	59.2	0.2	0.0				66.9	0.0	0.0
LnGrp LOS	A	D	F	E	A	A				E	A	
Approach Vol, veh/h		1963			654						577	A
Approach Delay, s/veh		60.8			19.4						66.9	
Approach LOS		E			B						E	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		60.0			13.8	46.2		40.0				
Change Period (Y+Rc), s		6.8			* 5.3	6.8		6.4				
Max Green Setting (Gmax), s		53.2			* 8.5	39.4		33.6				
Max Q Clear Time (g_c+I1), s		2.0			9.5	41.4		35.0				
Green Ext Time (p_c), s		2.9			0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay 53.5
 HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

2: NB Off Ramp/NB On Ramp & Kearns Blvd

11/03/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	770	957	0	0	372	379	230	0	68	0	0	0
Future Volume (veh/h)	770	957	0	0	372	379	230	0	68	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1826	1826	1826	1826	1826			
Adj Flow Rate, veh/h	837	1040	0	0	404	0	250	0	74			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	881	2398	0	0	701		285	0	254			
Arrive On Green	0.85	1.00	0.00	0.00	0.20	0.00	0.16	0.00	0.16			
Sat Flow, veh/h	1739	3561	0	0	3561	1547	1739	0	1547			
Grp Volume(v), veh/h	837	1040	0	0	404	0	250	0	74			
Grp Sat Flow(s),veh/h/ln	1739	1735	0	0	1735	1547	1739	0	1547			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	10.5	0.0	14.0	0.0	4.2			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	10.5	0.0	14.0	0.0	4.2			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	881	2398	0	0	701		285	0	254			
V/C Ratio(X)	0.95	0.43	0.00	0.00	0.58		0.88	0.00	0.29			
Avail Cap(c_a), veh/h	881	2398	0	0	701		318	0	283			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.18	0.18	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	4.1	0.0	0.0	0.0	36.0	0.0	40.8	0.0	36.7			
Incr Delay (d2), s/veh	5.2	0.1	0.0	0.0	3.4	0.0	21.6	0.0	0.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.0	0.0	0.0	0.0	4.6	0.0	7.5	0.0	1.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.3	0.1	0.0	0.0	39.5	0.0	62.4	0.0	37.3			
LnGrp LOS	A	A	A	A	D		E	A	D			
Approach Vol, veh/h	1877			404			A			324		
Approach Delay, s/veh	4.2			39.5			56.7					
Approach LOS	A			D			E					
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	48.9	26.8		24.3		75.7						
Change Period (Y+Rc), s	6.6	* 6.6		7.9		6.6						
Max Green Setting (Gmax), s	41.3	* 20		18.3		67.2						
Max Q Clear Time (g_c+I1), s	2.0	12.5		16.0		2.0						
Green Ext Time (p_c), s	3.3	1.4		0.3		8.7						
Intersection Summary												
HCM 6th Ctrl Delay	16.2											
HCM 6th LOS	B											
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th TWSC
3: Kearns Blvd & Old Hwy 40

11/03/2020

Intersection

Int Delay, s/veh 7.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	95	930	510	30	104	241
Future Vol, veh/h	95	930	510	30	104	241
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	166	-	-	280	0	160
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	103	1011	554	33	113	262

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	587	0	0 1266 277
Stage 1	-	-	- 554 -
Stage 2	-	-	- 712 -
Critical Hdwy	4.2	-	- 6.9 7
Critical Hdwy Stg 1	-	-	- 5.9 -
Critical Hdwy Stg 2	-	-	- 5.9 -
Follow-up Hdwy	2.25	-	- 3.55 3.35
Pot Cap-1 Maneuver	964	-	- 157 711
Stage 1	-	-	- 531 -
Stage 2	-	-	- 439 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	964	-	- 140 711
Mov Cap-2 Maneuver	-	-	- 140 -
Stage 1	-	-	- 474 -
Stage 2	-	-	- 439 -

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	37.2
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	964	-	-	-	140	711
HCM Lane V/C Ratio	0.107	-	-	-	0.807	0.368
HCM Control Delay (s)	9.2	-	-	-	93.3	13
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	0.4	-	-	-	5	1.7

Intersection												
Int Delay, s/veh	1.6											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Vol, veh/h	0	275	0	5	120	0	0	0	70	0	0	0
Future Vol, veh/h	0	275	0	5	120	0	0	0	70	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	299	0	5	130	0	0	0	76	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	130	0	-	299	0	0	439	439	299	477	439	130
Stage 1	-	-	-	-	-	-	299	299	-	140	140	-
Stage 2	-	-	-	-	-	-	140	140	-	337	299	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1437	-	0	1245	-	-	523	507	733	493	507	912
Stage 1	-	-	0	-	-	-	703	661	-	856	775	-
Stage 2	-	-	0	-	-	-	856	775	-	671	661	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1437	-	-	1245	-	-	521	505	733	440	505	912
Mov Cap-2 Maneuver	-	-	-	-	-	-	521	505	-	440	505	-
Stage 1	-	-	-	-	-	-	703	661	-	856	772	-
Stage 2	-	-	-	-	-	-	853	772	-	601	661	-
Approach	SE			NW			NE			SW		
HCM Control Delay, s	0			0.3			10.5			0		
HCM LOS							B			A		
Minor Lane/Major Mvmt	NELn1NELn2		NWL	NWT	NWR	SEL	SETSWLn1SWLn2					
Capacity (veh/h)	- 733		1245	-	-	1437	- -		-	-	-	-
HCM Lane V/C Ratio	- 0.104		0.004	-	-	-	- -		-	-	-	-
HCM Control Delay (s)	0 10.5		7.9	0	-	0	- 0		0	0		
HCM Lane LOS	A B		A A	-	-	A	- A		A	A		
HCM 95th %tile Q(veh)	- 0.3		0	-	-	0	- -		-	-	-	-

Intersection						
Int Delay, s/veh	0.6					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	256	0	4	116	0	19
Future Vol, veh/h	256	0	4	116	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	278	0	4	126	0	21
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	278	0	412	278
Stage 1	-	-	-	-	278	-
Stage 2	-	-	-	-	134	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1268	-	591	754
Stage 1	-	-	-	-	762	-
Stage 2	-	-	-	-	885	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1268	-	589	754
Mov Cap-2 Maneuver	-	-	-	-	589	-
Stage 1	-	-	-	-	762	-
Stage 2	-	-	-	-	882	-
Approach	SE	NW		NE		
HCM Control Delay, s	0	0.3		9.9		
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	SET	SER
Capacity (veh/h)	-	754	1268	-	-	-
HCM Lane V/C Ratio	-	0.027	0.003	-	-	-
HCM Control Delay (s)	0	9.9	7.8	0	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	-	0.1	0	-	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	256	0	6	110	0	0
Future Vol, veh/h	256	0	6	110	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	278	0	7	120	0	0
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	278	0	412	278
Stage 1	-	-	-	-	278	-
Stage 2	-	-	-	-	134	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1268	-	591	754
Stage 1	-	-	-	-	762	-
Stage 2	-	-	-	-	885	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1268	-	587	754
Mov Cap-2 Maneuver	-	-	-	-	587	-
Stage 1	-	-	-	-	762	-
Stage 2	-	-	-	-	880	-
Approach	SE	NW		NE		
HCM Control Delay, s	0	0.4		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	-	1268	-	-	-	-
HCM Lane V/C Ratio	-	0.005	-	-	-	-
HCM Control Delay (s)	0	7.9	0	-	-	-
HCM Lane LOS	A	A	A	-	-	-
HCM 95th %tile Q(veh)	-	0	-	-	-	-

Intersection						
Int Delay, s/veh	0.2					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	250	0	0	110	0	6
Future Vol, veh/h	250	0	0	110	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	272	0	0	120	0	7
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	272	0	392	272
Stage 1	-	-	-	-	272	-
Stage 2	-	-	-	-	120	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1274	-	606	760
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	898	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1274	-	606	760
Mov Cap-2 Maneuver	-	-	-	-	606	-
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	898	-
Approach	SE	NW		NE		
HCM Control Delay, s	0	0		9.8		
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	760	1274	-	-	-	
HCM Lane V/C Ratio	0.009	-	-	-	-	
HCM Control Delay (s)	9.8	0	-	-	-	
HCM Lane LOS	A	A	-	-	-	
HCM 95th %tile Q(veh)	0	0	-	-	-	

2026 PM Build Mitigation 1 LOS Results

HCM 6th Signalized Intersection Summary 1: SB On Ramp/SB Off Ramp & Kearns Blvd

10/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↑	↑
Traffic Volume (veh/h)	0	1196	610	192	406	0	0	0	0	531	0	500
Future Volume (veh/h)	0	1196	610	192	406	0	0	0	0	531	0	500
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No						No		
Adj Sat Flow, veh/h/ln	0	1826	1826	1826	1826	0				1826	1826	1826
Adj Flow Rate, veh/h	0	1300	663	209	441	0				577	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	5	5	5	5	0				5	5	5
Cap, veh/h	0	1367	610	227	1846	0				584	0	
Arrive On Green	0.00	0.39	0.39	0.17	1.00	0.00				0.34	0.00	0.00
Sat Flow, veh/h	0	3561	1547	1739	3561	0				1739	0	1547
Grp Volume(v), veh/h	0	1300	663	209	441	0				577	0	0
Grp Sat Flow(s),veh/h/ln	0	1735	1547	1739	1735	0				1739	0	1547
Q Serve(g_s), s	0.0	36.3	39.4	7.2	0.0	0.0				33.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	36.3	39.4	7.2	0.0	0.0				33.0	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1367	610	227	1846	0				584	0	
V/C Ratio(X)	0.00	0.95	1.09	0.92	0.24	0.00				0.99	0.00	
Avail Cap(c_a), veh/h	0	1367	610	227	1846	0				584	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.93	0.93	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	29.4	30.3	20.7	0.0	0.0				33.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	15.2	62.5	37.4	0.3	0.0				33.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	16.7	23.9	4.5	0.1	0.0				18.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	44.5	92.8	58.1	0.3	0.0				66.9	0.0	0.0
LnGrp LOS	A	D	F	E	A	A				E	A	
Approach Vol, veh/h	1963			650						577		
Approach Delay, s/veh	60.8			18.9						66.9		
Approach LOS	E			B						E		
Timer - Assigned Phs	2			5			6			8		
Phs Duration (G+Y+Rc), s	60.0			13.8			46.2			40.0		
Change Period (Y+Rc), s	6.8			* 5.3			6.8			6.4		
Max Green Setting (Gmax), s	53.2			* 8.5			39.4			33.6		
Max Q Clear Time (g_c+l1), s	2.0			9.2			41.4			35.0		
Green Ext Time (p_c), s	2.9			0.0			0.0			0.0		

Intersection Summary

HCM 6th Ctrl Delay 53.4

HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

2: NB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	770	957	0	0	368	374	230	0	67	0	0	0
Future Volume (veh/h)	770	957	0	0	368	374	230	0	67	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1826	1826	1826	1826	1826			
Adj Flow Rate, veh/h	837	1040	0	0	400	0	250	0	73			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	850	2374	0	0	812		297	0	264			
Arrive On Green	0.77	1.00	0.00	0.00	0.23	0.00	0.17	0.00	0.17			
Sat Flow, veh/h	1739	3561	0	0	3561	1547	1739	0	1547			
Grp Volume(v), veh/h	837	1040	0	0	400	0	250	0	73			
Grp Sat Flow(s), veh/h/ln	1739	1735	0	0	1735	1547	1739	0	1547			
Q Serve(g_s), s	18.4	0.0	0.0	0.0	10.0	0.0	13.9	0.0	4.1			
Cycle Q Clear(g_c), s	18.4	0.0	0.0	0.0	10.0	0.0	13.9	0.0	4.1			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	850	2374	0	0	812		297	0	264			
V/C Ratio(X)	0.98	0.44	0.00	0.00	0.49		0.84	0.00	0.28			
Avail Cap(c_a), veh/h	850	2374	0	0	812		471	0	419			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.18	0.18	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	6.5	0.0	0.0	0.0	33.2	0.0	40.2	0.0	36.1			
Incr Delay (d2), s/veh	9.8	0.1	0.0	0.0	2.1	0.0	7.7	0.0	0.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	6.6	0.0	0.0	0.0	4.2	0.0	6.3	0.0	1.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.3	0.1	0.0	0.0	35.3	0.0	47.9	0.0	36.7			
LnGrp LOS	B	A	A	A	D		D	A	D			
Approach Vol, veh/h	1877			400			323					
Approach Delay, s/veh	7.3			35.3			45.3					
Approach LOS	A			D			D					
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	45.0	30.0		25.0		75.0						
Change Period (Y+Rc), s	6.6	* 6.6		7.9		6.6						
Max Green Setting (Gmax), s	29.3	* 23		27.1		58.4						
Max Q Clear Time (g_c+20), s	20.4	12.0		15.9		2.0						
Green Ext Time (p_c), s	2.3	1.8		1.1		8.6						

Intersection Summary

HCM 6th Ctrl Delay 16.4
 HCM 6th LOS B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection

Int Delay, s/veh 8.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	94	930	510	31	113	232
Future Vol, veh/h	94	930	510	31	113	232
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	166	-	-	280	0	160
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	102	1011	554	34	123	252

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	588	0	0 1264 277
Stage 1	-	-	- 554 -
Stage 2	-	-	- 710 -
Critical Hdwy	4.2	-	- 6.9 7
Critical Hdwy Stg 1	-	-	- 5.9 -
Critical Hdwy Stg 2	-	-	- 5.9 -
Follow-up Hdwy	2.25	-	- 3.55 3.35
Pot Cap-1 Maneuver	963	-	- 157 711
Stage 1	-	-	- 531 -
Stage 2	-	-	- 440 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	963	-	- 140 711
Mov Cap-2 Maneuver	-	-	- 140 -
Stage 1	-	-	- 475 -
Stage 2	-	-	- 440 -

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	43.9
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	963	-	-	-	140	711
HCM Lane V/C Ratio	0.106	-	-	-	0.877	0.355
HCM Control Delay (s)	9.2	-	-	-	107.6	12.8
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	0.4	-	-	-	5.8	1.6

HCM 2010 TWSC
4: Old Hwy 40 & Atkinson Rd

10/13/2020

Intersection												
Int Delay, s/veh	1.6											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Vol, veh/h	0	275	0	5	120	0	0	0	70	0	0	0
Future Vol, veh/h	0	275	0	5	120	0	0	0	70	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	299	0	5	130	0	0	0	76	0	0	0
Major/Minor	Major1		Major2		Minor1		Minor2		Minor2			
Conflicting Flow All	130	0	-	299	0	0	439	439	299	477	439	130
Stage 1	-	-	-	-	-	-	299	299	-	140	140	-
Stage 2	-	-	-	-	-	-	140	140	-	337	299	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1437	-	0	1245	-	-	523	507	733	493	507	912
Stage 1	-	-	0	-	-	-	703	661	-	856	775	-
Stage 2	-	-	0	-	-	-	856	775	-	671	661	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1437	-	-	1245	-	-	521	505	733	440	505	912
Mov Cap-2 Maneuver	-	-	-	-	-	-	521	505	-	440	505	-
Stage 1	-	-	-	-	-	-	703	661	-	856	772	-
Stage 2	-	-	-	-	-	-	853	772	-	601	661	-
Approach	SE		NW		NE		SW		SW			
HCM Control Delay, s	0		0.3		10.5		0		0			
HCM LOS					B		A					
Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SWLn1	SWLn2			
Capacity (veh/h)	-	733	1245	-	-	1437	-	-	-			
HCM Lane V/C Ratio	-	0.104	0.004	-	-	-	-	-	-			
HCM Control Delay (s)	0	10.5	7.9	0	-	0	-	0	0			
HCM Lane LOS	A	B	A	A	-	A	-	A	A			
HCM 95th %tile Q(veh)	-	0.3	0	-	-	0	-	-	-			

Intersection						
Int Delay, s/veh	0.6					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	256	0	4	116	0	19
Future Vol, veh/h	256	0	4	116	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	278	0	4	126	0	21
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	278	0	412	278
Stage 1	-	-	-	-	278	-
Stage 2	-	-	-	-	134	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1268	-	591	754
Stage 1	-	-	-	-	762	-
Stage 2	-	-	-	-	885	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1268	-	589	754
Mov Cap-2 Maneuver	-	-	-	-	589	-
Stage 1	-	-	-	-	762	-
Stage 2	-	-	-	-	882	-
Approach	SE	NW		NE		
HCM Control Delay, s	0	0.3		9.9		
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	SET	SER
Capacity (veh/h)	-	754	1268	-	-	-
HCM Lane V/C Ratio	-	0.027	0.003	-	-	-
HCM Control Delay (s)	0	9.9	7.8	0	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	-	0.1	0	-	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	256	0	6	110	0	0
Future Vol, veh/h	256	0	6	110	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	278	0	7	120	0	0
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	278	0	412	278
Stage 1	-	-	-	-	278	-
Stage 2	-	-	-	-	134	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1268	-	591	754
Stage 1	-	-	-	-	762	-
Stage 2	-	-	-	-	885	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1268	-	587	754
Mov Cap-2 Maneuver	-	-	-	-	587	-
Stage 1	-	-	-	-	762	-
Stage 2	-	-	-	-	880	-
Approach	SE	NW		NE		
HCM Control Delay, s	0	0.4		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	-	1268	-	-	-	
HCM Lane V/C Ratio	-	0.005	-	-	-	
HCM Control Delay (s)	0	7.9	0	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	-	0	-	-	-	

Intersection						
Int Delay, s/veh	0.2					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	250	0	0	110	0	6
Future Vol, veh/h	250	0	0	110	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	272	0	0	120	0	7
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	272	0	392	272
Stage 1	-	-	-	-	272	-
Stage 2	-	-	-	-	120	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1274	-	606	760
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	898	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1274	-	606	760
Mov Cap-2 Maneuver	-	-	-	-	606	-
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	898	-
Approach	SE	NW		NE		
HCM Control Delay, s	0	0		9.8		
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	760	1274	-	-	-	
HCM Lane V/C Ratio	0.009	-	-	-	-	
HCM Control Delay (s)	9.8	0	-	-	-	
HCM Lane LOS	A	A	-	-	-	
HCM 95th %tile Q(veh)	0	0	-	-	-	

2026 PM Build Mitigation 2 LOS Results

HCM 6th Signalized Intersection Summary

1: SB On Ramp/SB Off Ramp & Kearns Blvd

10/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↑	↑
Traffic Volume (veh/h)	0	1196	610	192	406	0	0	0	0	531	0	500
Future Volume (veh/h)	0	1196	610	192	406	0	0	0	0	531	0	500
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No						No		
Adj Sat Flow, veh/h/ln	0	1826	1826	1826	1826	0				1826	1826	1826
Adj Flow Rate, veh/h	0	1300	663	209	441	0				577	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	5	5	5	5	0				5	5	5
Cap, veh/h	0	1367	610	227	1846	0				584	0	
Arrive On Green	0.00	0.39	0.39	0.09	0.53	0.00				0.34	0.00	0.00
Sat Flow, veh/h	0	3561	1547	1739	3561	0				1739	0	1547
Grp Volume(v), veh/h	0	1300	663	209	441	0				577	0	0
Grp Sat Flow(s),veh/h/ln	0	1735	1547	1739	1735	0				1739	0	1547
Q Serve(g_s), s	0.0	36.3	39.4	7.4	6.8	0.0				33.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	36.3	39.4	7.4	6.8	0.0				33.0	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1367	610	227	1846	0				584	0	
V/C Ratio(X)	0.00	0.95	1.09	0.92	0.24	0.00				0.99	0.00	
Avail Cap(c_a), veh/h	0	1367	610	227	1846	0				584	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.90	0.90	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	29.4	30.3	24.9	12.5	0.0				33.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	15.2	62.5	36.6	0.3	0.0				33.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	16.7	23.9	4.7	2.4	0.0				18.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	44.5	92.8	61.5	12.8	0.0				66.9	0.0	0.0
LnGrp LOS	A	D	F	E	B	A				E	A	
Approach Vol, veh/h	1963			650						577		
Approach Delay, s/veh	60.8			28.5						66.9		
Approach LOS	E			C						E		
Timer - Assigned Phs	2			5			6			8		
Phs Duration (G+Y+Rc), s	60.0			13.8			46.2			40.0		
Change Period (Y+Rc), s	6.8			* 5.3			6.8			6.4		
Max Green Setting (Gmax), s	53.2			* 8.5			39.4			33.6		
Max Q Clear Time (g_c+l1), s	8.8			9.4			41.4			35.0		
Green Ext Time (p_c), s	2.9			0.0			0.0			0.0		

Intersection Summary

HCM 6th Ctrl Delay 55.3

HCM 6th LOS E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

2: NB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↱	↑↑			↑↑	↰		↰	↰			
Traffic Volume (veh/h)	770	957	0	0	368	374	230	0	67	0	0	0
Future Volume (veh/h)	770	957	0	0	368	374	230	0	67	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1826	1826	1826	1826	1826			
Adj Flow Rate, veh/h	837	1040	0	0	400	0	250	0	73			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	1123	2243	0	0	802		299	0	266			
Arrive On Green	0.33	0.65	0.00	0.00	0.23	0.00	0.17	0.00	0.17			
Sat Flow, veh/h	3374	3561	0	0	3561	1547	1739	0	1547			
Grp Volume(v), veh/h	837	1040	0	0	400	0	250	0	73			
Grp Sat Flow(s),veh/h/ln	1687	1735	0	0	1735	1547	1739	0	1547			
Q Serve(g_s), s	17.6	12.1	0.0	0.0	8.0	0.0	11.1	0.0	3.3			
Cycle Q Clear(g_c), s	17.6	12.1	0.0	0.0	8.0	0.0	11.1	0.0	3.3			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	1123	2243	0	0	802		299	0	266			
V/C Ratio(X)	0.75	0.46	0.00	0.00	0.50		0.84	0.00	0.27			
Avail Cap(c_a), veh/h	1123	2243	0	0	802		391	0	348			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.18	0.18	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	23.7	7.1	0.0	0.0	26.7	0.0	32.0	0.0	28.8			
Incr Delay (d2), s/veh	0.5	0.1	0.0	0.0	2.2	0.0	11.5	0.0	0.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	6.3	3.2	0.0	0.0	3.3	0.0	5.3	0.0	1.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.2	7.3	0.0	0.0	28.9	0.0	43.5	0.0	29.3			
LnGrp LOS	C	A	A	A	C		D	A	C			
Approach Vol, veh/h	1877				400		A		323			
Approach Delay, s/veh	14.8				28.9				40.3			
Approach LOS	B				C				D			
Timer - Assigned Phs	1	2	4		6							
Phs Duration (G+Y+Rc), s	33.2	25.1	21.7		58.3							
Change Period (Y+Rc), s	6.6	* 6.6	7.9		6.6							
Max Green Setting (Gmax), s	23.3	* 19	18.0		47.5							
Max Q Clear Time (g_c+19), s	19.6	10.0	13.1		14.1							
Green Ext Time (p_c), s	1.3	1.5	0.7		8.1							

Intersection Summary

HCM 6th Ctrl Delay 20.1
 HCM 6th LOS C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	8.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	94	930	510	31	113	232
Future Vol, veh/h	94	930	510	31	113	232
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	166	-	-	280	0	160
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	102	1011	554	34	123	252
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	588	0	-	0	1264	277
Stage 1	-	-	-	-	554	-
Stage 2	-	-	-	-	710	-
Critical Hdwy	4.2	-	-	-	6.9	7
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	2.25	-	-	-	3.55	3.35
Pot Cap-1 Maneuver	963	-	-	-	157	711
Stage 1	-	-	-	-	531	-
Stage 2	-	-	-	-	440	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	963	-	-	-	140	711
Mov Cap-2 Maneuver	-	-	-	-	140	-
Stage 1	-	-	-	-	475	-
Stage 2	-	-	-	-	440	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.8	0		43.9		
HCM LOS	E					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	963	-	-	-	140	711
HCM Lane V/C Ratio	0.106	-	-	-	0.877	0.355
HCM Control Delay (s)	9.2	-	-	-	107.6	12.8
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	0.4	-	-	-	5.8	1.6

Intersection												
Int Delay, s/veh	1.6											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Vol, veh/h	0	275	0	5	120	0	0	0	70	0	0	0
Future Vol, veh/h	0	275	0	5	120	0	0	0	70	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	299	0	5	130	0	0	0	76	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	130	0	-	299	0	0	439	439	299	477	439	130
Stage 1	-	-	-	-	-	-	299	299	-	140	140	-
Stage 2	-	-	-	-	-	-	140	140	-	337	299	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1437	-	0	1245	-	-	523	507	733	493	507	912
Stage 1	-	-	0	-	-	-	703	661	-	856	775	-
Stage 2	-	-	0	-	-	-	856	775	-	671	661	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1437	-	-	1245	-	-	521	505	733	440	505	912
Mov Cap-2 Maneuver	-	-	-	-	-	-	521	505	-	440	505	-
Stage 1	-	-	-	-	-	-	703	661	-	856	772	-
Stage 2	-	-	-	-	-	-	853	772	-	601	661	-
Approach	SE			NW			NE			SW		
HCM Control Delay, s	0			0.3			10.5			0		
HCM LOS							B			A		
Minor Lane/Major Mvmt	NELn1NELn2		NWL	NWT	NWR	SEL	SETSWLn1SWLn2					
Capacity (veh/h)	- 733		1245	-	-	1437	- -		-	-	-	-
HCM Lane V/C Ratio	- 0.104		0.004	-	-	-	- -		-	-	-	-
HCM Control Delay (s)	0 10.5		7.9	0	-	0	- 0		0	0		
HCM Lane LOS	A B		A A	-	-	A	- A		A	A		
HCM 95th %tile Q(veh)	- 0.3		0	-	-	0	- -		-	-	-	-

Intersection						
Int Delay, s/veh	0.6					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	256	0	4	116	0	19
Future Vol, veh/h	256	0	4	116	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	278	0	4	126	0	21
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	278	0	412	278
Stage 1	-	-	-	-	278	-
Stage 2	-	-	-	-	134	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1268	-	591	754
Stage 1	-	-	-	-	762	-
Stage 2	-	-	-	-	885	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1268	-	589	754
Mov Cap-2 Maneuver	-	-	-	-	589	-
Stage 1	-	-	-	-	762	-
Stage 2	-	-	-	-	882	-
Approach	SE	NW		NE		
HCM Control Delay, s	0	0.3		9.9		
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	SET	SER
Capacity (veh/h)	-	754	1268	-	-	-
HCM Lane V/C Ratio	-	0.027	0.003	-	-	-
HCM Control Delay (s)	0	9.9	7.8	0	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	-	0.1	0	-	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	256	0	6	110	0	0
Future Vol, veh/h	256	0	6	110	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	278	0	7	120	0	0
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	278	0	412	278
Stage 1	-	-	-	-	278	-
Stage 2	-	-	-	-	134	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1268	-	591	754
Stage 1	-	-	-	-	762	-
Stage 2	-	-	-	-	885	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1268	-	587	754
Mov Cap-2 Maneuver	-	-	-	-	587	-
Stage 1	-	-	-	-	762	-
Stage 2	-	-	-	-	880	-
Approach	SE	NW		NE		
HCM Control Delay, s	0	0.4		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	-	1268	-	-	-	-
HCM Lane V/C Ratio	-	0.005	-	-	-	-
HCM Control Delay (s)	0	7.9	0	-	-	-
HCM Lane LOS	A	A	A	-	-	-
HCM 95th %tile Q(veh)	-	0	-	-	-	-

Intersection						
Int Delay, s/veh	0.2					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	250	0	0	110	0	6
Future Vol, veh/h	250	0	0	110	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	272	0	0	120	0	7
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	272	0	392	272
Stage 1	-	-	-	-	272	-
Stage 2	-	-	-	-	120	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1274	-	606	760
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	898	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1274	-	606	760
Mov Cap-2 Maneuver	-	-	-	-	606	-
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	898	-
Approach	SE	NW		NE		
HCM Control Delay, s	0	0		9.8		
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	760	1274	-	-	-	
HCM Lane V/C Ratio	0.009	-	-	-	-	
HCM Control Delay (s)	9.8	0	-	-	-	
HCM Lane LOS	A	A	-	-	-	
HCM 95th %tile Q(veh)	0	0	-	-	-	

2026 AM Build Sensitivity Analysis LOS
Results

1: SB On Ramp/SB Off Street & Kearns Blvd Performance by movement Interval #1 7:00

Movement	EBT	EBR	WBL	WBT	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1	0.2
Denied Del/Veh (s)	0.2	3.2	0.0	0.0	1.5	3.1	1.1
Total Delay (hr)	0.4	0.0	0.1	0.7	0.4	0.2	1.7
Total Del/Veh (s)	12.2	2.2	17.7	11.6	20.5	4.8	10.8
Vehicles Entered	116	32	10	204	63	121	546
Vehicles Exited	118	32	11	206	63	122	552
Hourly Exit Rate	472	128	44	824	252	488	2208
Input Volume	419	117	64	886	280	573	2339
% of Volume	113	109	69	93	90	85	94

1: SB On Ramp/SB Off Street & Kearns Blvd Performance by movement Interval #2 7:15

Movement	EBT	EBR	WBL	WBT	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.2	0.2
Denied Del/Veh (s)	0.2	3.2	0.0	0.0	2.0	3.4	1.2
Total Delay (hr)	0.4	0.0	0.1	0.8	0.5	0.3	2.0
Total Del/Veh (s)	12.2	2.5	11.7	11.1	21.2	5.5	10.9
Vehicles Entered	111	23	22	263	82	166	667
Vehicles Exited	104	23	21	260	82	164	654
Hourly Exit Rate	416	92	84	1040	328	656	2616
Input Volume	470	130	72	992	313	641	2618
% of Volume	89	71	117	105	105	102	100

1: SB On Ramp/SB Off Street & Kearns Blvd Performance by movement Interval #3 7:30

Movement	EBT	EBR	WBL	WBT	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1	0.2
Denied Del/Veh (s)	0.3	3.6	0.0	0.0	2.0	3.4	1.3
Total Delay (hr)	0.4	0.0	0.1	0.9	0.4	0.2	2.0
Total Del/Veh (s)	13.8	1.8	11.3	13.4	18.3	5.4	11.5
Vehicles Entered	105	29	20	233	77	152	616
Vehicles Exited	112	28	19	232	77	156	624
Hourly Exit Rate	448	112	76	928	308	624	2496
Input Volume	419	117	64	886	280	573	2339
% of Volume	107	96	119	105	110	109	107

1: SB On Ramp/SB Off Street & Kearns Blvd Performance by movement Interval #4 7:45

Movement	EBT	EBR	WBL	WBT	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.2	0.2
Denied Del/Veh (s)	0.2	3.0	0.0	0.0	2.4	3.6	1.5
Total Delay (hr)	0.3	0.0	0.1	0.6	0.4	0.3	1.6
Total Del/Veh (s)	10.9	1.8	10.5	10.0	19.8	6.6	10.1
Vehicles Entered	94	16	16	204	67	175	572
Vehicles Exited	96	16	18	201	66	175	572
Hourly Exit Rate	384	64	72	804	264	700	2288
Input Volume	419	117	64	886	280	573	2339
% of Volume	92	55	112	91	94	122	98

1: SB On Ramp/SB Off Street & Kearns Blvd Performance by movement Entire Run

Movement	EBT	EBR	WBL	WBT	SBL	SBR	All
Denied Delay (hr)	0.0	0.1	0.0	0.0	0.2	0.6	0.9
Denied Del/Veh (s)	0.2	3.3	0.0	0.0	2.0	3.4	1.3
Total Delay (hr)	1.5	0.1	0.2	2.9	1.6	1.0	7.4
Total Del/Veh (s)	12.8	2.1	12.7	11.7	20.1	5.7	11.0
Vehicles Entered	426	100	68	904	289	614	2401
Vehicles Exited	430	99	69	899	288	617	2402
Hourly Exit Rate	430	99	69	899	288	617	2402
Input Volume	432	120	66	912	288	590	2409
% of Volume	100	82	105	99	100	105	100

2: SB Off Ramp/NB On Ramp & Kearns Blvd Performance by movement Interval #1 7:00

Movement	EBL	EBT	WBT	WBR	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.4	0.2	0.1
Total Delay (hr)	0.6	0.5	0.9	0.1	0.9	0.0	3.0
Total Del/Veh (s)	26.7	18.4	30.6	2.6	27.1	2.6	19.4
Vehicles Entered	78	103	106	99	112	49	547
Vehicles Exited	79	101	105	100	109	48	542
Hourly Exit Rate	316	404	420	400	436	192	2168
Input Volume	311	388	425	458	524	229	2335
% of Volume	102	104	99	87	83	84	93

2: SB Off Ramp/NB On Ramp & Kearns Blvd Performance by movement Interval #2 7:15

Movement	EBL	EBT	WBT	WBR	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.7	0.4	0.2
Total Delay (hr)	0.4	0.7	1.3	0.1	1.3	0.1	4.0
Total Del/Veh (s)	21.2	22.6	34.6	3.1	29.1	4.3	20.9
Vehicles Entered	74	112	129	129	160	63	667
Vehicles Exited	73	104	132	130	153	64	656
Hourly Exit Rate	292	416	528	520	612	256	2624
Input Volume	348	436	476	513	587	257	2617
% of Volume	84	95	111	101	104	100	100

2: SB Off Ramp/NB On Ramp & Kearns Blvd Performance by movement Interval #3 7:30

Movement	EBL	EBT	WBT	WBR	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.1	0.0	0.2
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	2.8	3.1	0.9
Total Delay (hr)	0.7	0.9	0.9	0.1	2.0	0.1	4.8
Total Del/Veh (s)	24.3	31.1	29.1	3.0	46.4	9.0	25.9
Vehicles Entered	95	94	113	136	146	49	633
Vehicles Exited	95	94	107	135	145	49	625
Hourly Exit Rate	380	376	428	540	580	196	2500
Input Volume	311	388	425	458	524	229	2335
% of Volume	122	97	101	118	111	86	107

2: SB Off Ramp/NB On Ramp & Kearns Blvd Performance by movement Interval #4 7:45

Movement	EBL	EBT	WBT	WBR	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.6	1.1	0.2
Total Delay (hr)	0.5	0.5	0.8	0.1	1.0	0.1	2.9
Total Del/Veh (s)	20.2	18.0	29.8	2.5	27.1	6.9	18.4
Vehicles Entered	78	84	96	104	112	60	534
Vehicles Exited	80	90	100	105	120	60	555
Hourly Exit Rate	320	360	400	420	480	240	2220
Input Volume	311	388	425	458	524	229	2335
% of Volume	103	93	94	92	92	105	95

2: SB Off Ramp/NB On Ramp & Kearns Blvd Performance by movement Entire Run

Movement	EBL	EBT	WBT	WBR	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.2	0.1	0.3
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	1.2	1.2	0.4
Total Delay (hr)	2.2	2.6	3.9	0.4	5.2	0.4	14.7
Total Del/Veh (s)	23.8	24.1	31.8	2.9	35.2	5.8	22.1
Vehicles Entered	325	393	444	468	530	221	2381
Vehicles Exited	327	389	444	470	527	221	2378
Hourly Exit Rate	327	389	444	470	527	221	2378
Input Volume	320	400	438	472	540	236	2406
% of Volume	102	97	101	100	98	94	99

3: Kearns Blvd & Old Hwy 40 Performance by movement Interval #1 7:00

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.0	0.9	2.8	0.0	0.0	0.5
Total Delay (hr)	0.5	0.2	0.1	0.0	0.3	0.1	1.2
Total Del/Veh (s)	25.5	7.2	2.7	0.8	126.1	8.3	11.0
Vehicles Entered	73	76	173	13	8	31	374
Vehicles Exited	72	75	176	14	8	29	374
Hourly Exit Rate	288	300	704	56	32	116	1496
Input Volume	287	331	796	57	20	87	1579
% of Volume	100	91	88	98	160	133	95

3: Kearns Blvd & Old Hwy 40 Performance by movement Interval #2 7:15

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.1	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.0	1.0	2.6	0.0	0.0	0.6
Total Delay (hr)	1.1	0.2	0.2	0.0	0.5	0.2	2.1
Total Del/Veh (s)	46.0	7.3	3.5	1.1	232.1	15.2	16.2
Vehicles Entered	81	86	228	17	7	36	455
Vehicles Exited	74	84	221	17	2	37	435
Hourly Exit Rate	296	336	884	68	8	148	1740
Input Volume	322	370	891	64	23	98	1769
% of Volume	92	91	99	106	35	151	98

3: Kearns Blvd & Old Hwy 40 Performance by movement Interval #3 7:30

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.1	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.0	1.2	2.8	0.0	0.0	0.8
Total Delay (hr)	1.1	0.3	0.2	0.0	0.9	0.0	2.5
Total Del/Veh (s)	54.1	11.9	3.3	1.9	393.1	10.0	21.1
Vehicles Entered	64	79	226	15	3	15	402
Vehicles Exited	64	80	233	15	5	16	413
Hourly Exit Rate	256	320	932	60	20	64	1652
Input Volume	287	331	796	57	20	87	1579
% of Volume	89	97	117	105	100	74	105

3: Kearns Blvd & Old Hwy 40 Performance by movement Interval #4 7:45

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.5	3.2	0.0	0.0	0.3
Total Delay (hr)	0.4	0.2	0.1	0.0	0.2	0.0	0.9
Total Del/Veh (s)	18.6	7.9	2.4	0.4	117.0	3.8	8.8
Vehicles Entered	59	91	176	10	4	26	366
Vehicles Exited	65	92	175	9	7	25	373
Hourly Exit Rate	260	368	700	36	28	100	1492
Input Volume	287	331	796	57	20	87	1579
% of Volume	91	111	88	63	140	115	94

3: Kearns Blvd & Old Hwy 40 Performance by movement Entire Run

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.2	0.0	0.0	0.0	0.3
Denied Del/Veh (s)	0.0	0.0	0.9	2.8	0.0	0.0	0.6
Total Delay (hr)	3.0	0.8	0.7	0.0	1.8	0.3	6.7
Total Del/Veh (s)	39.3	8.7	3.0	1.1	299.9	10.1	15.0
Vehicles Entered	277	332	803	55	22	108	1597
Vehicles Exited	275	331	805	55	22	107	1595
Hourly Exit Rate	275	331	805	55	22	107	1595
Input Volume	296	341	820	59	21	90	1626
% of Volume	93	97	98	94	106	119	98

4: Old Hwy 40 & Atkinson Rd Performance by movement Interval #1 7:00

Movement	SET	NWL	NWT	NER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	0.1	2.7	2.1	2.5	1.6
Vehicles Entered	38	22	64	2	126
Vehicles Exited	38	21	63	2	124
Hourly Exit Rate	152	84	252	8	496
Input Volume	99	97	248	10	454
% of Volume	154	87	102	80	109

4: Old Hwy 40 & Atkinson Rd Performance by movement Interval #2 7:15

Movement	SET	NWL	NWT	NER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0
Total Delay (hr)	0.0	0.0	0.1	0.0	0.1
Total Del/Veh (s)	0.2	3.7	2.8	3.4	2.3
Vehicles Entered	38	28	63	5	134
Vehicles Exited	38	29	62	5	134
Hourly Exit Rate	152	116	248	20	536
Input Volume	110	109	277	11	507
% of Volume	138	106	90	182	106

4: Old Hwy 40 & Atkinson Rd Performance by movement Interval #3 7:30

Movement	SET	NWL	NWT	NER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.1	2.5	1.9	2.7	1.8
Vehicles Entered	17	25	55	1	98
Vehicles Exited	17	22	56	1	96
Hourly Exit Rate	68	88	224	4	384
Input Volume	99	97	248	10	454
% of Volume	69	91	90	40	85

4: Old Hwy 40 & Atkinson Rd Performance by movement Interval #4 7:45

Movement	SET	NWL	NWT	NER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.1	2.2	2.0	2.3	1.5
Vehicles Entered	29	13	62	1	105
Vehicles Exited	29	16	62	1	108
Hourly Exit Rate	116	64	248	4	432
Input Volume	99	97	248	10	454
% of Volume	117	66	100	40	95

4: Old Hwy 40 & Atkinson Rd Performance by movement Entire Run

Movement	SET	NWL	NWT	NER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0
Total Delay (hr)	0.0	0.1	0.2	0.0	0.2
Total Del/Veh (s)	0.1	3.0	2.3	3.0	1.9
Vehicles Entered	122	88	244	9	463
Vehicles Exited	122	88	243	9	462
Hourly Exit Rate	122	88	243	9	462
Input Volume	102	100	255	10	467
% of Volume	120	88	95	88	99

14: North Access & Old Hwy 40 Performance by movement Interval #1 7:00

Movement	SET	NWL	NWT	NER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.0	1.5	1.0	3.4	0.9
Vehicles Entered	33	16	47	5	101
Vehicles Exited	33	16	46	5	100
Hourly Exit Rate	132	64	184	20	400
Input Volume	84	86	162	15	347
% of Volume	157	74	114	133	115

14: North Access & Old Hwy 40 Performance by movement Interval #2 7:15

Movement	SET	NWL	NWT	NER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.0	2.6	1.9	3.4	1.6
Vehicles Entered	32	26	36	6	100
Vehicles Exited	32	26	37	6	101
Hourly Exit Rate	128	104	148	24	404
Input Volume	93	97	180	16	386
% of Volume	138	107	82	150	105

14: North Access & Old Hwy 40 Performance by movement Interval #3 7:30

Movement	SET	NWL	NWT	NER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.1	1.5	1.7	2.4	1.3
Vehicles Entered	15	25	31	2	73
Vehicles Exited	15	25	31	2	73
Hourly Exit Rate	60	100	124	8	292
Input Volume	84	86	162	15	347
% of Volume	71	116	77	53	84

14: North Access & Old Hwy 40 Performance by movement Interval #4 7:45

Movement	SET	NWL	NWT	NER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.0	2.0	1.7	2.5	1.3
Vehicles Entered	25	24	38	4	91
Vehicles Exited	25	24	37	4	90
Hourly Exit Rate	100	96	148	16	360
Input Volume	84	86	162	15	347
% of Volume	119	112	91	107	104

14: North Access & Old Hwy 40 Performance by movement Entire Run

Movement	SET	NWL	NWT	NER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0
Total Delay (hr)	0.0	0.0	0.1	0.0	0.1
Total Del/Veh (s)	0.0	1.9	1.5	3.1	1.3
Vehicles Entered	105	91	152	17	365
Vehicles Exited	105	91	151	17	364
Hourly Exit Rate	105	91	151	17	364
Input Volume	86	89	166	15	357
% of Volume	122	103	91	111	102

16: Bus Entrance Performance by movement Interval #1 7:00

Movement	SET	NWL	NWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.0	1.6	0.1	0.1
Vehicles Entered	33	1	44	78
Vehicles Exited	33	1	45	79
Hourly Exit Rate	132	4	180	316
Input Volume	84	6	155	245
% of Volume	157	67	116	129

16: Bus Entrance Performance by movement Interval #2 7:15

Movement	SET	NWL	NWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.0	1.6	0.2	0.1
Vehicles Entered	33	1	36	70
Vehicles Exited	33	1	36	70
Hourly Exit Rate	132	4	144	280
Input Volume	95	7	174	276
% of Volume	139	57	83	101

16: Bus Entrance Performance by movement Interval #3 7:30

Movement	SET	NWT	All
Denied Delay (hr)	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0
Total Del/Veh (s)	0.0	0.3	0.2
Vehicles Entered	15	31	46
Vehicles Exited	15	31	46
Hourly Exit Rate	60	124	184
Input Volume	84	155	245
% of Volume	71	80	75

16: Bus Entrance Performance by movement Interval #4 7:45

Movement	SET	NWL	NWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.0	0.8	0.2	0.1
Vehicles Entered	25	1	35	61
Vehicles Exited	25	1	35	61
Hourly Exit Rate	100	4	140	244
Input Volume	84	6	155	245
% of Volume	119	67	90	100

16: Bus Entrance Performance by movement Entire Run

Movement	SET	NWL	NWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.0	1.3	0.2	0.1
Vehicles Entered	106	3	146	255
Vehicles Exited	106	3	147	256
Hourly Exit Rate	106	3	147	256
Input Volume	87	6	160	253
% of Volume	122	48	92	101

18: Bus Exit & Old Hwy 40 Performance by movement Interval #1 7:00

Movement	SET	NWT	NER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.0	0.1	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.3	0.0	2.3	0.2
Vehicles Entered	31	45	2	78
Vehicles Exited	31	45	2	78
Hourly Exit Rate	124	180	8	312
Input Volume	78	155	6	239
% of Volume	159	116	133	131

18: Bus Exit & Old Hwy 40 Performance by movement Interval #2 7:15

Movement	SET	NWT	NER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.3	0.0	0.1	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.4	0.0	2.3	0.2
Vehicles Entered	31	36	2	69
Vehicles Exited	31	35	2	68
Hourly Exit Rate	124	140	8	272
Input Volume	87	174	7	268
% of Volume	143	80	114	101

18: Bus Exit & Old Hwy 40 Performance by movement Interval #3 7:30

Movement	SET	NWT	All
Denied Delay (hr)	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0
Total Del/Veh (s)	0.4	0.0	0.2
Vehicles Entered	15	31	46
Vehicles Exited	15	32	47
Hourly Exit Rate	60	128	188
Input Volume	78	155	239
% of Volume	77	83	79

18: Bus Exit & Old Hwy 40 Performance by movement Interval #4 7:45

Movement	SET	NWT	NER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.0	0.1	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.4	0.0	2.5	0.2
Vehicles Entered	23	35	2	60
Vehicles Exited	23	35	2	60
Hourly Exit Rate	92	140	8	240
Input Volume	78	155	6	239
% of Volume	118	90	133	100

18: Bus Exit & Old Hwy 40 Performance by movement Entire Run

Movement	SET	NWT	NER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.0	0.1	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.4	0.0	2.3	0.2
Vehicles Entered	100	147	6	253
Vehicles Exited	100	147	6	253
Hourly Exit Rate	100	147	6	253
Input Volume	80	160	6	246
% of Volume	125	92	96	103

Total Network Performance By Interval

Interval Start	7:00	7:15	7:30	7:45	All
Denied Delay (hr)	0.2	0.3	0.5	0.3	1.4
Denied Del/Veh (s)	1.2	1.4	2.1	1.5	1.6
Total Delay (hr)	6.5	8.9	10.1	6.2	31.6
Total Del/Veh (s)	30.8	33.7	39.5	27.0	35.4
Vehicles Entered	719	894	819	741	3173
Vehicles Exited	704	848	841	774	3167
Hourly Exit Rate	2816	3392	3364	3096	3167
Input Volume	10641	11916	10641	10641	10960
% of Volume	26	28	32	29	29

Queuing and Blocking Report

Baseline

12/04/2020

Intersection: 1: SB On Ramp/SB Off Street & Kearns Blvd, Interval #1

Movement	EB	EB	WB	WB	WB	SB
Directions Served	T	T	L	T	T	LT
Maximum Queue (ft)	177	72	52	167	206	151
Average Queue (ft)	108	32	30	100	104	111
95th Queue (ft)	194	79	57	162	180	160
Link Distance (ft)	944	944		569	569	582
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			250			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 1: SB On Ramp/SB Off Street & Kearns Blvd, Interval #2

Movement	EB	EB	WB	WB	WB	SB
Directions Served	T	T	L	T	T	LT
Maximum Queue (ft)	222	124	52	138	159	266
Average Queue (ft)	85	35	28	98	113	153
95th Queue (ft)	127	99	51	132	138	251
Link Distance (ft)	944	944		569	569	582
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			250			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 1: SB On Ramp/SB Off Street & Kearns Blvd, Interval #3

Movement	EB	EB	WB	WB	WB	SB
Directions Served	T	T	L	T	T	LT
Maximum Queue (ft)	199	30	54	192	229	183
Average Queue (ft)	134	4	40	135	157	112
95th Queue (ft)	228	22	64	224	239	181
Link Distance (ft)	944	944		569	569	582
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			250			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Queuing and Blocking Report

Baseline

12/04/2020

Intersection: 1: SB On Ramp/SB Off Street & Kearns Blvd, Interval #4

Movement	EB	EB	WB	WB	WB	SB
Directions Served	T	T	L	T	T	LT
Maximum Queue (ft)	140	30	53	139	136	197
Average Queue (ft)	88	16	26	94	100	106
95th Queue (ft)	136	38	57	124	126	181
Link Distance (ft)	944	944		569	569	582
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			250			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 1: SB On Ramp/SB Off Street & Kearns Blvd, All Intervals

Movement	EB	EB	WB	WB	WB	SB
Directions Served	T	T	L	T	T	LT
Maximum Queue (ft)	222	124	54	192	229	266
Average Queue (ft)	104	22	31	107	118	120
95th Queue (ft)	182	68	59	172	188	201
Link Distance (ft)	944	944		569	569	582
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			250			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: SB Off Ramp/NB On Ramp & Kearns Blvd, Interval #1

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	LT	R
Maximum Queue (ft)	249	201	165	156	179	353	97
Average Queue (ft)	144	132	70	100	111	200	31
95th Queue (ft)	274	206	154	163	180	334	94
Link Distance (ft)		569	569	275	275	421	421
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	250						
Storage Blk Time (%)	0						
Queuing Penalty (veh)	1						

Queuing and Blocking Report

Baseline

12/04/2020

Intersection: 2: SB Off Ramp/NB On Ramp & Kearns Blvd, Interval #2

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	LT	R
Maximum Queue (ft)	166	230	168	198	202	368	128
Average Queue (ft)	122	121	64	138	126	325	48
95th Queue (ft)	165	212	156	195	183	389	114
Link Distance (ft)		569	569	275	275	421	421
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	250						
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 2: SB Off Ramp/NB On Ramp & Kearns Blvd, Interval #3

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	LT	R
Maximum Queue (ft)	256	180	160	181	196	484	436
Average Queue (ft)	157	116	89	117	104	374	119
95th Queue (ft)	271	212	175	175	179	527	342
Link Distance (ft)		569	569	275	275	421	421
Upstream Blk Time (%)						17	1
Queuing Penalty (veh)						0	0
Storage Bay Dist (ft)	250						
Storage Blk Time (%)	1						
Queuing Penalty (veh)	1						

Intersection: 2: SB Off Ramp/NB On Ramp & Kearns Blvd, Interval #4

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	LT	R
Maximum Queue (ft)	184	138	120	179	135	436	146
Average Queue (ft)	140	70	62	120	91	232	52
95th Queue (ft)	191	121	109	187	140	380	131
Link Distance (ft)		569	569	275	275	421	421
Upstream Blk Time (%)						1	
Queuing Penalty (veh)						0	
Storage Bay Dist (ft)	250						
Storage Blk Time (%)							
Queuing Penalty (veh)							

Queuing and Blocking Report

Baseline

12/04/2020

Intersection: 2: SB Off Ramp/NB On Ramp & Kearns Blvd, All Intervals

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	LT	R
Maximum Queue (ft)	256	230	168	198	202	484	436
Average Queue (ft)	141	110	71	119	108	283	63
95th Queue (ft)	236	198	152	184	175	456	201
Link Distance (ft)		569	569	275	275	421	421
Upstream Blk Time (%)						5	0
Queuing Penalty (veh)						0	0
Storage Bay Dist (ft)	250						
Storage Blk Time (%)	0						
Queuing Penalty (veh)	1						

Intersection: 3: Kearns Blvd & Old Hwy 40, Interval #1

Movement	EB	EB	SB	SB
Directions Served	L	T	L	R
Maximum Queue (ft)	190	288	66	88
Average Queue (ft)	102	41	37	40
95th Queue (ft)	186	208	70	58
Link Distance (ft)		275	615	
Upstream Blk Time (%)		1		
Queuing Penalty (veh)		5		
Storage Bay Dist (ft)	166			160
Storage Blk Time (%)	8	0		
Queuing Penalty (veh)	27	1		

Intersection: 3: Kearns Blvd & Old Hwy 40, Interval #2

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	R	L	R
Maximum Queue (ft)	190	290	25	110	109
Average Queue (ft)	176	0	4	42	58
95th Queue (ft)	195	0	18	85	109
Link Distance (ft)		275		615	
Upstream Blk Time (%)		3			
Queuing Penalty (veh)		24			
Storage Bay Dist (ft)	166		280		160
Storage Blk Time (%)	24	0			
Queuing Penalty (veh)	88	1			

Queuing and Blocking Report

Baseline

12/04/2020

Intersection: 3: Kearns Blvd & Old Hwy 40, Interval #3

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	R	L	R
Maximum Queue (ft)	191	335	41	132	52
Average Queue (ft)	142	142	6	81	24
95th Queue (ft)	219	412	30	139	51
Link Distance (ft)		275		615	
Upstream Blk Time (%)		20			
Queuing Penalty (veh)		124			
Storage Bay Dist (ft)	166		280		160
Storage Blk Time (%)	31	0			
Queuing Penalty (veh)	102	0			

Intersection: 3: Kearns Blvd & Old Hwy 40, Interval #4

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	R	L	R
Maximum Queue (ft)	190	295	64	66	41
Average Queue (ft)	94	42	9	31	29
95th Queue (ft)	169	212	46	68	38
Link Distance (ft)		275		615	
Upstream Blk Time (%)		1			
Queuing Penalty (veh)		5			
Storage Bay Dist (ft)	166		280		160
Storage Blk Time (%)	1	0			
Queuing Penalty (veh)	4	0			

Intersection: 3: Kearns Blvd & Old Hwy 40, All Intervals

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	R	L	R
Maximum Queue (ft)	191	335	64	132	109
Average Queue (ft)	129	56	5	48	38
95th Queue (ft)	216	256	28	102	75
Link Distance (ft)		275		615	
Upstream Blk Time (%)		6			
Queuing Penalty (veh)		39			
Storage Bay Dist (ft)	166		280		160
Storage Blk Time (%)	16	0			
Queuing Penalty (veh)	55	0			

Queuing and Blocking Report

Baseline

12/04/2020

Intersection: 4: Old Hwy 40 & Atkinson Rd, Interval #1

Movement	NW	NE
Directions Served	LTR	TR
Maximum Queue (ft)	52	29
Average Queue (ft)	23	4
95th Queue (ft)	51	21
Link Distance (ft)	615	157
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Old Hwy 40 & Atkinson Rd, Interval #2

Movement	NW	NE
Directions Served	LTR	TR
Maximum Queue (ft)	31	30
Average Queue (ft)	9	14
95th Queue (ft)	31	36
Link Distance (ft)	615	157
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Old Hwy 40 & Atkinson Rd, Interval #3

Movement	NW	NE
Directions Served	LTR	TR
Maximum Queue (ft)	29	27
Average Queue (ft)	0	7
95th Queue (ft)	0	26
Link Distance (ft)	615	157
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report

Baseline

12/04/2020

Intersection: 4: Old Hwy 40 & Atkinson Rd, Interval #4

Movement	NW	NE
Directions Served	LTR	TR
Maximum Queue (ft)	27	29
Average Queue (ft)	8	4
95th Queue (ft)	28	21
Link Distance (ft)	615	157
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Old Hwy 40 & Atkinson Rd, All Intervals

Movement	NW	NE
Directions Served	LTR	TR
Maximum Queue (ft)	52	30
Average Queue (ft)	10	7
95th Queue (ft)	35	27
Link Distance (ft)	615	157
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: North Access & Old Hwy 40, Interval #1

Movement	NE
Directions Served	R
Maximum Queue (ft)	29
Average Queue (ft)	16
95th Queue (ft)	40
Link Distance (ft)	149
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report

Baseline

12/04/2020

Intersection: 14: North Access & Old Hwy 40, Interval #2

Movement	NW	NE
Directions Served	LT	R
Maximum Queue (ft)	54	29
Average Queue (ft)	32	12
95th Queue (ft)	59	34
Link Distance (ft)	222	149
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: North Access & Old Hwy 40, Interval #3

Movement	NE
Directions Served	R
Maximum Queue (ft)	28
Average Queue (ft)	8
95th Queue (ft)	28
Link Distance (ft)	149
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 14: North Access & Old Hwy 40, Interval #4

Movement	NW	NE
Directions Served	LT	R
Maximum Queue (ft)	68	47
Average Queue (ft)	17	11
95th Queue (ft)	56	40
Link Distance (ft)	222	149
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report

Baseline

12/04/2020

Intersection: 14: North Access & Old Hwy 40, All Intervals

Movement	NW	NE
Directions Served	LT	R
Maximum Queue (ft)	68	47
Average Queue (ft)	12	12
95th Queue (ft)	45	36
Link Distance (ft)	222	149
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 16: Bus Entrance, Interval #1

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 16: Bus Entrance, Interval #2

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 16: Bus Entrance, Interval #3

Movement

Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 16: Bus Entrance, Interval #4

Movement

Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 16: Bus Entrance, All Intervals

Movement

Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Queuing and Blocking Report

Baseline

12/04/2020

Intersection: 18: Bus Exit & Old Hwy 40, Interval #1

Movement	NE
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	8
95th Queue (ft)	30
Link Distance (ft)	121
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Bus Exit & Old Hwy 40, Interval #2

Movement	NE
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	8
95th Queue (ft)	31
Link Distance (ft)	121
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Bus Exit & Old Hwy 40, Interval #3

Movement	
Directions Served	
Maximum Queue (ft)	
Average Queue (ft)	
95th Queue (ft)	
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report

Baseline

12/04/2020

Intersection: 18: Bus Exit & Old Hwy 40, Interval #4

Movement	NE
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	8
95th Queue (ft)	31
Link Distance (ft)	121
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Bus Exit & Old Hwy 40, All Intervals

Movement	NE
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	6
95th Queue (ft)	26
Link Distance (ft)	121
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

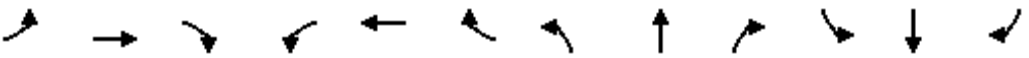
Network wide Queuing Penalty, Interval #1: 33
Network wide Queuing Penalty, Interval #2: 112
Network wide Queuing Penalty, Interval #3: 227
Network wide Queuing Penalty, Interval #4: 10
Network wide Queuing Penalty, All Intervals: 96

2026 AM Build Sensitivity 2 Analysis
LOS Results

HCM 6th Signalized Intersection Summary

1: SB On Ramp/SB Off Ramp & Kearns Blvd

01/20/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↖	↑↑						↖	↗
Traffic Volume (veh/h)	0	510	120	140	980	0	0	0	0	270	0	590
Future Volume (veh/h)	0	510	120	140	980	0	0	0	0	270	0	590
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1826	1826	1826	1826	0				1826	1826	1826
Adj Flow Rate, veh/h	0	554	0	152	1065	0				293	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	5	5	5	5	0				5	5	5
Cap, veh/h	0	1066		449	1753	0				390	0	
Arrive On Green	0.00	0.31	0.00	0.09	0.51	0.00				0.22	0.00	0.00
Sat Flow, veh/h	0	3561	1547	1739	3561	0				1739	0	1547
Grp Volume(v), veh/h	0	554	0	152	1065	0				293	0	0
Grp Sat Flow(s),veh/h/ln	0	1735	1547	1739	1735	0				1739	0	1547
Q Serve(g_s), s	0.0	6.4	0.0	2.6	10.7	0.0				7.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	6.4	0.0	2.6	10.7	0.0				7.7	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1066		449	1753	0				390	0	
V/C Ratio(X)	0.00	0.52		0.34	0.61	0.00				0.75	0.00	
Avail Cap(c_a), veh/h	0	2146		711	3355	0				1055	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	13.9	0.0	9.3	8.6	0.0				17.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.4	0.3	0.0				2.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.0	0.0	0.7	2.5	0.0				2.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.3	0.0	9.8	9.0	0.0				20.6	0.0	0.0
LnGrp LOS	A	B		A	A	A				C	A	
Approach Vol, veh/h		554	A		1217						293	A
Approach Delay, s/veh		14.3			9.1						20.6	
Approach LOS		B			A						C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		31.5			9.7	21.8		17.3				
Change Period (Y+Rc), s		6.8			* 5.3	6.8		6.4				
Max Green Setting (Gmax), s		47.2			* 12	30.2		29.6				
Max Q Clear Time (g_c+I1), s		12.7			4.6	8.4		9.7				
Green Ext Time (p_c), s		8.4			0.2	3.4		1.5				
Intersection Summary												
HCM 6th Ctrl Delay			12.1									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary

2: NB Off Ramp/NB On Ramp & Kearns Blvd

01/20/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	320	460	0	0	580	470	540	0	160	0	0	0
Future Volume (veh/h)	320	460	0	0	580	470	540	0	160	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1826	1826	1826	1826	1826			
Adj Flow Rate, veh/h	348	500	0	0	630	0	587	0	174			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	418	1585	0	0	755		642	0	571			
Arrive On Green	0.17	0.46	0.00	0.00	0.22	0.00	0.37	0.00	0.37			
Sat Flow, veh/h	1739	3561	0	0	3561	1547	1739	0	1547			
Grp Volume(v), veh/h	348	500	0	0	630	0	587	0	174			
Grp Sat Flow(s),veh/h/ln	1739	1735	0	0	1735	1547	1739	0	1547			
Q Serve(g_s), s	12.3	7.6	0.0	0.0	14.5	0.0	26.8	0.0	6.7			
Cycle Q Clear(g_c), s	12.3	7.6	0.0	0.0	14.5	0.0	26.8	0.0	6.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	418	1585	0	0	755		642	0	571			
V/C Ratio(X)	0.83	0.32	0.00	0.00	0.83		0.91	0.00	0.30			
Avail Cap(c_a), veh/h	419	1722	0	0	890		711	0	633			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	20.2	14.4	0.0	0.0	31.2	0.0	25.1	0.0	18.7			
Incr Delay (d2), s/veh	13.4	0.1	0.0	0.0	6.0	0.0	15.5	0.0	0.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	5.9	2.6	0.0	0.0	6.2	0.0	12.6	0.0	2.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.6	14.5	0.0	0.0	37.2	0.0	40.6	0.0	19.0			
LnGrp LOS	C	B	A	A	D		D	A	B			
Approach Vol, veh/h	848			630			A			761		
Approach Delay, s/veh	22.3			37.2			35.6					
Approach LOS	C			D			D					
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	20.0	24.8		38.7		44.7						
Change Period (Y+Rc), s	5.7	6.6		7.9		6.6						
Max Green Setting (Gmax), s	14.3	21.4		34.1		41.4						
Max Q Clear Time (g_c+l1), s	14.3	16.5		28.8		9.6						
Green Ext Time (p_c), s	0.0	1.7		2.0		3.2						
Intersection Summary												
HCM 6th Ctrl Delay	31.0											
HCM 6th LOS	C											
Notes												

HCM 6th TWSC
3: Kearns Blvd & Old Hwy 40

01/20/2021

Intersection						
Int Delay, s/veh	40.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	280	340	820	120	90	230
Future Vol, veh/h	280	340	820	120	90	230
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	166	-	-	280	0	160
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	304	370	891	130	98	250
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1021	0	-	0	1684	446
Stage 1	-	-	-	-	891	-
Stage 2	-	-	-	-	793	-
Critical Hdwy	4.2	-	-	-	6.9	7
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	2.25	-	-	-	3.55	3.35
Pot Cap-1 Maneuver	658	-	-	-	~ 82	552
Stage 1	-	-	-	-	354	-
Stage 2	-	-	-	-	399	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	658	-	-	-	~ 44	552
Mov Cap-2 Maneuver	-	-	-	-	~ 44	-
Stage 1	-	-	-	-	190	-
Stage 2	-	-	-	-	399	-
Approach	EB	WB		SB		
HCM Control Delay, s	6.8	0		225.6		
HCM LOS	F					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	658	-	-	-	44	552
HCM Lane V/C Ratio	0.463	-	-	-	2.223	0.453
HCM Control Delay (s)	15.1	-	-	-	\$ 759.1	16.8
HCM Lane LOS	C	-	-	-	F	C
HCM 95th %tile Q(veh)	2.4	-	-	-	10.3	2.3
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

HCM 6th Signalized Intersection Summary

1: SB On Ramp/SB Off Street & Kearns Blvd

01/20/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↑	↑
Traffic Volume (veh/h)	0	522	120	146	1002	0	0	0	0	288	0	590
Future Volume (veh/h)	0	522	120	146	1002	0	0	0	0	288	0	590
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1826	1826	1826	1826	0				1826	1826	1826
Adj Flow Rate, veh/h	0	567	0	159	1089	0				313	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	5	5	5	5	0				5	5	5
Cap, veh/h	0	1045		437	1727	0				412	0	
Arrive On Green	0.00	0.30	0.00	0.09	0.50	0.00				0.24	0.00	0.00
Sat Flow, veh/h	0	3561	1547	1739	3561	0				1739	0	1547
Grp Volume(v), veh/h	0	567	0	159	1089	0				313	0	0
Grp Sat Flow(s),veh/h/ln	0	1735	1547	1739	1735	0				1739	0	1547
Q Serve(g_s), s	0.0	6.8	0.0	2.8	11.4	0.0				8.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	6.8	0.0	2.8	11.4	0.0				8.3	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1045		437	1727	0				412	0	
V/C Ratio(X)	0.00	0.54		0.36	0.63	0.00				0.76	0.00	
Avail Cap(c_a), veh/h	0	2034		689	3219	0				1069	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	14.5	0.0	9.8	9.1	0.0				17.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.5	0.4	0.0				2.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.1	0.0	0.8	2.8	0.0				3.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.0	0.0	10.3	9.5	0.0				20.6	0.0	0.0
LnGrp LOS	A	B		B	A	A				C	A	
Approach Vol, veh/h		567	A		1248						313	A
Approach Delay, s/veh		15.0			9.6						20.6	
Approach LOS		B			A						C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		31.6			9.8	21.8		18.2				
Change Period (Y+Rc), s		6.8			* 5.3	6.8		6.4				
Max Green Setting (Gmax), s		46.2			* 12	29.2		30.6				
Max Q Clear Time (g_c+I1), s		13.4			4.8	8.8		10.3				
Green Ext Time (p_c), s		8.6			0.2	3.4		1.6				
Intersection Summary												
HCM 6th Ctrl Delay			12.7									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary

2: SB Off Ramp/NB On Ramp & Kearns Blvd

01/20/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	320	490	0	0	608	472	540	0	317	0	0	0
Future Volume (veh/h)	320	490	0	0	608	472	540	0	317	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1826	1826	1826	1826	1826			
Adj Flow Rate, veh/h	348	533	0	0	661	0	587	0	345			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	410	1595	0	0	773		643	0	572			
Arrive On Green	0.17	0.46	0.00	0.00	0.22	0.00	0.37	0.00	0.37			
Sat Flow, veh/h	1739	3561	0	0	3561	1547	1739	0	1547			
Grp Volume(v), veh/h	348	533	0	0	661	0	587	0	345			
Grp Sat Flow(s),veh/h/ln	1739	1735	0	0	1735	1547	1739	0	1547			
Q Serve(g_s), s	12.4	8.3	0.0	0.0	15.5	0.0	27.3	0.0	15.4			
Cycle Q Clear(g_c), s	12.4	8.3	0.0	0.0	15.5	0.0	27.3	0.0	15.4			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	410	1595	0	0	773		643	0	572			
V/C Ratio(X)	0.85	0.33	0.00	0.00	0.86		0.91	0.00	0.60			
Avail Cap(c_a), veh/h	412	1690	0	0	866		698	0	621			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	20.5	14.7	0.0	0.0	31.7	0.0	25.5	0.0	21.7			
Incr Delay (d2), s/veh	15.3	0.1	0.0	0.0	7.7	0.0	15.7	0.0	1.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	6.2	2.9	0.0	0.0	6.9	0.0	12.8	0.0	5.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.8	14.8	0.0	0.0	39.4	0.0	41.2	0.0	23.2			
LnGrp LOS	D	B	A	A	D		D	A	C			
Approach Vol, veh/h	881			661			A			932		
Approach Delay, s/veh	23.1			39.4			34.5					
Approach LOS	C			D			C					
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	20.1	25.5		39.3		45.7						
Change Period (Y+Rc), s	5.7	6.6		7.9		6.6						
Max Green Setting (Gmax), s	14.5	21.2		34.1		41.4						
Max Q Clear Time (g_c+I1), s	14.4	17.5		29.3		10.3						
Green Ext Time (p_c), s	0.0	1.4		2.1		3.5						
Intersection Summary												
HCM 6th Ctrl Delay	31.8											
HCM 6th LOS	C											
Notes												

HCM 2010 TWSC
3: Kearns Blvd & Old Hwy 40

01/20/2021

Intersection						
Int Delay, s/veh	212.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	467	340	820	129	91	260
Future Vol, veh/h	467	340	820	129	91	260
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	166	-	-	280	0	160
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	508	370	891	140	99	283
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1031	0	-	0	2092	446
Stage 1	-	-	-	-	891	-
Stage 2	-	-	-	-	1201	-
Critical Hdwy	4.2	-	-	-	6.9	7
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	2.25	-	-	-	3.55	3.35
Pot Cap-1 Maneuver	652	-	-	-	~ 43	552
Stage 1	-	-	-	-	354	-
Stage 2	-	-	-	-	242	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	652	-	-	-	~ 10	552
Mov Cap-2 Maneuver	-	-	-	-	~ 10	-
Stage 1	-	-	-	-	~ 78	-
Stage 2	-	-	-	-	242	-
Approach	EB	WB		SB		
HCM Control Delay, s	15.7	0		\$ 1240.5		
HCM LOS	F					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	652	-	-	-	10	552
HCM Lane V/C Ratio	0.779	-	-	-	9.891	0.512
HCM Control Delay (s)	27.2	-	-	-	\$ 4732.9	18.2
HCM Lane LOS	D	-	-	-	F	C
HCM 95th %tile Q(veh)	7.5	-	-	-	13.8	2.9
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

HCM 2010 TWSC
4: Old Hwy 40 & Atkinson Rd

01/20/2021

Intersection												
Int Delay, s/veh	1											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Vol, veh/h	0	341	0	100	496	0	0	0	10	0	0	0
Future Vol, veh/h	0	341	0	100	496	0	0	0	10	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	371	0	109	539	0	0	0	11	0	0	0
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	539	0	-	371	0	0	1128	1128	371	1134	1128	539
Stage 1	-	-	-	-	-	-	371	371	-	757	757	-
Stage 2	-	-	-	-	-	-	757	757	-	377	371	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1014	-	0	1171	-	-	179	202	668	177	202	537
Stage 1	-	-	0	-	-	-	643	614	-	395	411	-
Stage 2	-	-	0	-	-	-	395	411	-	638	614	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1014	-	-	1171	-	-	161	175	668	156	175	537
Mov Cap-2 Maneuver	-	-	-	-	-	-	161	175	-	156	175	-
Stage 1	-	-	-	-	-	-	643	614	-	395	356	-
Stage 2	-	-	-	-	-	-	342	356	-	628	614	-
Approach	SE		NW		NE		SW					
HCM Control Delay, s	0		1.4		10.5		0					
HCM LOS					B		A					
Minor Lane/Major Mvmt	NELn1NELn2		NWL		NWT		NWR		SEL		SETSWLn1SWLn2	
Capacity (veh/h)	- 668		1171		-		-		1014		-	
HCM Lane V/C Ratio	- 0.016		0.093		-		-		-		-	
HCM Control Delay (s)	0		10.5		8.4		0		0		0	
HCM Lane LOS	A		B		A		A		A		A	
HCM 95th %tile Q(veh)	-		0.1		0.3		-		0		-	

Intersection						
Int Delay, s/veh	1.1					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	326	0	89	407	0	15
Future Vol, veh/h	326	0	89	407	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	354	0	97	442	0	16
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	354	0	990	354
Stage 1	-	-	-	-	354	-
Stage 2	-	-	-	-	636	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1188	-	270	683
Stage 1	-	-	-	-	704	-
Stage 2	-	-	-	-	522	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1188	-	241	683
Mov Cap-2 Maneuver	-	-	-	-	241	-
Stage 1	-	-	-	-	704	-
Stage 2	-	-	-	-	466	-
Approach	SE	NW		NE		
HCM Control Delay, s	0	1.5		10.4		
HCM LOS	B					
Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	SET	SER
Capacity (veh/h)	-	683	1188	-	-	-
HCM Lane V/C Ratio	-	0.024	0.081	-	-	-
HCM Control Delay (s)	0	10.4	8.3	0	-	-
HCM Lane LOS	A	B	A	A	-	-
HCM 95th %tile Q(veh)	-	0.1	0.3	-	-	-

Intersection

Int Delay, s/veh 0.1

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	326	0	6	401	0	0
Future Vol, veh/h	326	0	6	401	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	354	0	7	436	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	354
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.15
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.245
Pot Cap-1 Maneuver	-	-	1188
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1188
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SE	NW	NE
HCM Control Delay, s	0	0.1	0
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	-	1188	-	-	-
HCM Lane V/C Ratio	-	0.005	-	-	-
HCM Control Delay (s)	0	8	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	320	0	0	401	0	6
Future Vol, veh/h	320	0	0	401	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	348	0	0	436	0	7
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	348	0	784	348
Stage 1	-	-	-	-	348	-
Stage 2	-	-	-	-	436	-
Critical Hdwy	-	-	4.15	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.245	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	1194	-	358	688
Stage 1	-	-	-	-	708	-
Stage 2	-	-	-	-	646	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1194	-	358	688
Mov Cap-2 Maneuver	-	-	-	-	358	-
Stage 1	-	-	-	-	708	-
Stage 2	-	-	-	-	646	-
Approach	SE	NW		NE		
HCM Control Delay, s	0	0		10.3		
HCM LOS	B					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	688	1194	-	-	-	
HCM Lane V/C Ratio	0.009	-	-	-	-	
HCM Control Delay (s)	10.3	0	-	-	-	
HCM Lane LOS	B	A	-	-	-	
HCM 95th %tile Q(veh)	0	0	-	-	-	

2026 PM Build Sensitivity 2 Analysis
LOS Results

HCM 6th Signalized Intersection Summary

1: SB On Ramp/SB Off Ramp & Kearns Blvd

01/20/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↗	↑↑						↖	↖
Traffic Volume (veh/h)	0	1330	610	260	530	0	0	0	0	530	0	500
Future Volume (veh/h)	0	1330	610	260	530	0	0	0	0	530	0	500
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1826	1826	1826	1826	0				1826	1826	1826
Adj Flow Rate, veh/h	0	1446	0	283	576	0				576	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	5	5	5	5	0				5	5	5
Cap, veh/h	0	1440		264	2001	0				545	0	
Arrive On Green	0.00	0.41	0.00	0.24	1.00	0.00				0.31	0.00	0.00
Sat Flow, veh/h	0	3561	1547	1739	3561	0				1739	0	1547
Grp Volume(v), veh/h	0	1446	0	283	576	0				576	0	0
Grp Sat Flow(s),veh/h/ln	0	1735	1547	1739	1735	0				1739	0	1547
Q Serve(g_s), s	0.0	49.8	0.0	14.1	0.0	0.0				37.6	0.0	0.0
Cycle Q Clear(g_c), s	0.0	49.8	0.0	14.1	0.0	0.0				37.6	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1440		264	2001	0				545	0	
V/C Ratio(X)	0.00	1.00		1.07	0.29	0.00				1.06	0.00	
Avail Cap(c_a), veh/h	0	1440		264	2001	0				545	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.52	0.52	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	35.1	0.0	32.0	0.0	0.0				41.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	24.8	0.0	60.2	0.2	0.0				54.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	24.6	0.0	10.9	0.1	0.0				23.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	59.9	0.0	92.2	0.2	0.0				95.7	0.0	0.0
LnGrp LOS	A	F		F	A	A				F	A	
Approach Vol, veh/h		1446	A		859						576	A
Approach Delay, s/veh		59.9			30.5						95.7	
Approach LOS		E			C						F	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		76.0			19.4	56.6		44.0				
Change Period (Y+Rc), s		6.8			* 5.3	6.8		6.4				
Max Green Setting (Gmax), s		69.2			* 14	49.8		37.6				
Max Q Clear Time (g_c+I1), s		2.0			16.1	51.8		39.6				
Green Ext Time (p_c), s		4.0			0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			58.3									
HCM 6th LOS			E									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary

2: NB Off Ramp/NB On Ramp & Kearns Blvd

01/20/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	770	1090	0	0	560	370	230	0	190	0	0	0
Future Volume (veh/h)	770	1090	0	0	560	370	230	0	190	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1826	1826	1826	1826	1826			
Adj Flow Rate, veh/h	837	1185	0	0	609	0	250	0	207			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	862	2495	0	0	763		278	0	248			
Arrive On Green	0.30	0.48	0.00	0.00	0.22	0.00	0.16	0.00	0.16			
Sat Flow, veh/h	1739	3561	0	0	3561	1547	1739	0	1547			
Grp Volume(v), veh/h	837	1185	0	0	609	0	250	0	207			
Grp Sat Flow(s),veh/h/ln	1739	1735	0	0	1735	1547	1739	0	1547			
Q Serve(g_s), s	50.8	27.5	0.0	0.0	19.9	0.0	16.9	0.0	15.6			
Cycle Q Clear(g_c), s	50.8	27.5	0.0	0.0	19.9	0.0	16.9	0.0	15.6			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	862	2495	0	0	763		278	0	248			
V/C Ratio(X)	0.97	0.47	0.00	0.00	0.80		0.90	0.00	0.84			
Avail Cap(c_a), veh/h	862	2495	0	0	763		291	0	259			
HCM Platoon Ratio	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	38.5	15.9	0.0	0.0	44.3	0.0	49.4	0.0	48.9			
Incr Delay (d2), s/veh	4.5	0.1	0.0	0.0	8.5	0.0	27.7	0.0	20.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	25.6	11.5	0.0	0.0	9.2	0.0	9.3	0.0	7.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.9	15.9	0.0	0.0	52.8	0.0	77.2	0.0	68.9			
LnGrp LOS	D	B	A	A	D		E	A	E			
Approach Vol, veh/h	2022			609			A			457		
Approach Delay, s/veh	27.1			52.8			73.4					
Approach LOS	C			D			E					
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	59.9	33.0		27.1		92.9						
Change Period (Y+Rc), s	6.6	* 6.6		7.9		6.6						
Max Green Setting (Gmax), s	53.3	* 26		20.1		85.4						
Max Q Clear Time (g_c+l1), s	52.8	21.9		18.9		29.5						
Green Ext Time (p_c), s	0.2	1.5		0.3		10.6						
Intersection Summary												
HCM 6th Ctrl Delay	39.0											
HCM 6th LOS	D											
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th TWSC
3: Kearns Blvd & Old Hwy 40

01/20/2021

Intersection

Int Delay, s/veh 140.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	350	930	510	150	170	420
Future Vol, veh/h	350	930	510	150	170	420
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	166	-	-	280	0	160
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	380	1011	554	163	185	457

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	717	0	0 1820 277
Stage 1	-	-	- 554 -
Stage 2	-	-	- 1266 -
Critical Hdwy	4.2	-	- 6.9 7
Critical Hdwy Stg 1	-	-	- 5.9 -
Critical Hdwy Stg 2	-	-	- 5.9 -
Follow-up Hdwy	2.25	-	- 3.55 3.35
Pot Cap-1 Maneuver	860	-	- ~ 67 711
Stage 1	-	-	- 531 -
Stage 2	-	-	- 223 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	860	-	- ~ 37 711
Mov Cap-2 Maneuver	-	-	- ~ 37 -
Stage 1	-	-	- 296 -
Stage 2	-	-	- 223 -

Approach	EB	WB	SB
HCM Control Delay, s	3.4	0	\$ 593.6
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	860	-	-	-	37	711
HCM Lane V/C Ratio	0.442	-	-	-	4.994	0.642
HCM Control Delay (s)	12.5	-	-	-	\$ 2014	18.7
HCM Lane LOS	B	-	-	-	F	C
HCM 95th %tile Q(veh)	2.3	-	-	-	21.7	4.7

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th Signalized Intersection Summary

1: SB On Ramp/SB Off Ramp & Kearns Blvd

01/20/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↑	↑
Traffic Volume (veh/h)	0	1342	610	416	542	0	0	0	0	532	0	500
Future Volume (veh/h)	0	1342	610	416	542	0	0	0	0	532	0	500
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1826	1826	1826	1826	0				1826	1826	1826
Adj Flow Rate, veh/h	0	1459	663	452	589	0				578	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	5	5	5	5	0				5	5	5
Cap, veh/h	0	1346	600	381	2132	0				517	0	
Arrive On Green	0.00	0.39	0.39	0.38	1.00	0.00				0.30	0.00	0.00
Sat Flow, veh/h	0	3561	1547	1739	3561	0				1739	0	1547
Grp Volume(v), veh/h	0	1459	663	452	589	0				578	0	0
Grp Sat Flow(s),veh/h/ln	0	1735	1547	1739	1735	0				1739	0	1547
Q Serve(g_s), s	0.0	58.2	58.2	28.7	0.0	0.0				44.6	0.0	0.0
Cycle Q Clear(g_c), s	0.0	58.2	58.2	28.7	0.0	0.0				44.6	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1346	600	381	2132	0				517	0	
V/C Ratio(X)	0.00	1.08	1.10	1.19	0.28	0.00				1.12	0.00	
Avail Cap(c_a), veh/h	0	1346	600	381	2132	0				517	0	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.39	0.39	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	45.9	45.9	36.8	0.0	0.0				52.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	50.6	68.6	94.7	0.1	0.0				76.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	33.6	33.0	15.7	0.0	0.0				29.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	96.5	114.5	131.4	0.1	0.0				128.8	0.0	0.0
LnGrp LOS	A	F	F	F	A	A				F	A	
Approach Vol, veh/h		2122			1041						578	A
Approach Delay, s/veh		102.2			57.1						128.8	
Approach LOS		F			E						F	
Timer - Assigned Phs		2			5	6			8			
Phs Duration (G+Y+Rc), s		99.0			34.0	65.0			51.0			
Change Period (Y+Rc), s		6.8			* 5.3	6.8			6.4			
Max Green Setting (Gmax), s		92.2			* 29	58.2			44.6			
Max Q Clear Time (g_c+I1), s		2.0			30.7	60.2			46.6			
Green Ext Time (p_c), s		4.1			0.0	0.0			0.0			
Intersection Summary												
HCM 6th Ctrl Delay				93.7								
HCM 6th LOS				F								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary

2: NB Off Ramp/NB On Ramp & Kearns Blvd

01/20/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	770	1104	0	0	728	388	230	0	206	0	0	0
Future Volume (veh/h)	770	1104	0	0	728	388	230	0	206	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1826	1826	1826	1826	1826			
Adj Flow Rate, veh/h	837	1200	0	0	791	0	250	0	224			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	965	2852	0	0	911		273	0	243			
Arrive On Green	0.17	0.27	0.00	0.00	0.26	0.00	0.16	0.00	0.16			
Sat Flow, veh/h	1739	3561	0	0	3561	1547	1739	0	1547			
Grp Volume(v), veh/h	837	1200	0	0	791	0	250	0	224			
Grp Sat Flow(s),veh/h/ln	1739	1735	0	0	1735	1547	1739	0	1547			
Q Serve(g_s), s	64.1	42.7	0.0	0.0	32.7	0.0	21.2	0.0	21.4			
Cycle Q Clear(g_c), s	64.1	42.7	0.0	0.0	32.7	0.0	21.2	0.0	21.4			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	965	2852	0	0	911		273	0	243			
V/C Ratio(X)	0.87	0.42	0.00	0.00	0.87		0.91	0.00	0.92			
Avail Cap(c_a), veh/h	965	2852	0	0	911		279	0	249			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	54.1	25.3	0.0	0.0	52.8	0.0	62.2	0.0	62.3			
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.0	11.0	0.0	32.1	0.0	36.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	32.9	19.8	0.0	0.0	15.3	0.0	11.7	0.0	10.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.9	25.3	0.0	0.0	63.8	0.0	94.4	0.0	98.5			
LnGrp LOS	D	C	A	A	E		F	A	F			
Approach Vol, veh/h	2037			791			A			474		
Approach Delay, s/veh	37.5			63.8			96.3					
Approach LOS	D			E			F					
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	84.2	46.0		31.5		130.2						
Change Period (Y+Rc), s	6.6	* 6.6		7.9		6.6						
Max Green Setting (Gmax), s	66.3	* 39		24.1		111.4						
Max Q Clear Time (g_c+I1), s	66.1	34.7		23.4		44.7						
Green Ext Time (p_c), s	0.1	2.1		0.2		11.0						
Intersection Summary												
HCM 6th Ctrl Delay	52.2											
HCM 6th LOS	D											
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th TWSC
3: Kearns Blvd & Old Hwy 40

01/20/2021

Intersection

Int Delay, s/veh 181.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	380	930	510	151	179	606
Future Vol, veh/h	380	930	510	151	179	606
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	166	-	-	280	0	160
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	413	1011	554	164	195	659

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	718	0	0 1886 277
Stage 1	-	-	- 554 -
Stage 2	-	-	- 1332 -
Critical Hdwy	4.2	-	- 6.9 7
Critical Hdwy Stg 1	-	-	- 5.9 -
Critical Hdwy Stg 2	-	-	- 5.9 -
Follow-up Hdwy	2.25	-	- 3.55 3.35
Pot Cap-1 Maneuver	859	-	- ~ 60 711
Stage 1	-	-	- 531 -
Stage 2	-	-	- 205 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	859	-	- ~ 31 711
Mov Cap-2 Maneuver	-	-	- ~ 31 -
Stage 1	-	-	- 276 -
Stage 2	-	-	- 205 -

Approach	EB	WB	SB
HCM Control Delay, s	3.8	0	\$ 631.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	859	-	-	-	31	711
HCM Lane V/C Ratio	0.481	-	-	-	6.276	0.926
HCM Control Delay (s)	13	-	-	-	\$ 2626.4	42.3
HCM Lane LOS	B	-	-	-	F	E
HCM 95th %tile Q(veh)	2.7	-	-	-	23.5	12.8

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th TWSC
4: Old Hwy 40 & Atkinson Rd

01/20/2021

Intersection												
Int Delay, s/veh	0.9											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	0	715	0	5	526	0	0	0	70	0	0	0
Future Vol, veh/h	0	715	0	5	526	0	0	0	70	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	0	777	0	5	572	0	0	0	76	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	572	0	-	777	0	0	1359	1359	777	1397	1359	572
Stage 1	-	-	-	-	-	-	777	777	-	582	582	-
Stage 2	-	-	-	-	-	-	582	582	-	815	777	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	986	-	0	826	-	-	124	146	392	117	146	514
Stage 1	-	-	0	-	-	-	385	403	-	494	494	-
Stage 2	-	-	0	-	-	-	494	494	-	367	403	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	986	-	-	826	-	-	123	145	392	94	145	514
Mov Cap-2 Maneuver	-	-	-	-	-	-	123	145	-	94	145	-
Stage 1	-	-	-	-	-	-	385	403	-	494	490	-
Stage 2	-	-	-	-	-	-	490	490	-	296	403	-
Approach	SE			NW			NE			SW		
HCM Control Delay, s	0			0.1			16.4			0		
HCM LOS							C			A		
Minor Lane/Major Mvmt	NELn1NELn2		NWL	NWT	NWR	SEL	SETSWLn1SWLn2					
Capacity (veh/h)	- 392		826	-	-	986	- - -					
HCM Lane V/C Ratio	- 0.194		0.007	-	-	-	- - -					
HCM Control Delay (s)	0 16.4		9.4	0	-	0	- 0 0					
HCM Lane LOS	A C		A A	-	-	A	- A A					
HCM 95th %tile Q(veh)	- 0.7		0	-	-	0	- - -					

HCM 6th TWSC
14: North Access & Old Hwy 40

01/20/2021

Intersection

Int Delay, s/veh 0.3

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	696	0	4	522	0	19
Future Vol, veh/h	696	0	4	522	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	757	0	4	567	0	21

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	757
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.15
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.245
Pot Cap-1 Maneuver	-	-	841
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	841
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SE	NW	NE
HCM Control Delay, s	0	0.1	14.4
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	SET	SER
Capacity (veh/h)	-	403	841	-	-	-
HCM Lane V/C Ratio	-	0.051	0.005	-	-	-
HCM Control Delay (s)	0	14.4	9.3	0	-	-
HCM Lane LOS	A	B	A	A	-	-
HCM 95th %tile Q(veh)	-	0.2	0	-	-	-

HCM 6th TWSC
16: Bus Entrance & Old Hwy 40

01/20/2021

Intersection

Int Delay, s/veh 0

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	696	0	6	516	0	0
Future Vol, veh/h	696	0	6	516	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	757	0	7	561	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	757
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.15
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.245
Pot Cap-1 Maneuver	-	-	841
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	841
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SE	NW	NE
HCM Control Delay, s	0	0.1	0
HCM LOS			A

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	-	841	-	-	-
HCM Lane V/C Ratio	-	0.008	-	-	-
HCM Control Delay (s)	0	9.3	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-	-

HCM 6th TWSC
18: Bus Exit & Old Hwy 40

01/20/2021

Intersection

Int Delay, s/veh 0.1

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	690	0	0	516	0	6
Future Vol, veh/h	690	0	0	516	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	750	0	0	561	0	7

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	750
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.15
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.245
Pot Cap-1 Maneuver	-	-	846
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	846
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SE	NW	NE
HCM Control Delay, s	0	0	14
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	406	846	-	-	-
HCM Lane V/C Ratio	0.016	-	-	-	-
HCM Control Delay (s)	14	0	-	-	-
HCM Lane LOS	B	A	-	-	-
HCM 95th %tile Q(veh)	0	0	-	-	-

APPENDIX C: QUEUING ANALYSIS

2020 Existing AM Queue Results

Queues

1: SB On Ramp/SB Off Ramp & Kearns Blvd

10/13/2020

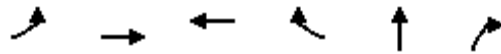


Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	413	120	54	880	261	576
v/c Ratio	0.37	0.21	0.11	0.56	0.55	0.37
Control Delay	16.8	5.4	7.8	11.7	22.3	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.8	5.4	7.8	11.7	22.3	0.7
Queue Length 50th (ft)	55	0	7	88	73	0
Queue Length 95th (ft)	108	33	25	165	149	0
Internal Link Dist (ft)	892			524	544	
Turn Bay Length (ft)		580	250			415
Base Capacity (vph)	2326	1079	766	3359	1177	1538
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.11	0.07	0.26	0.22	0.37
Intersection Summary						

Queues

2: NB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	315	359	413	457	522	76
v/c Ratio	0.69	0.24	0.65	0.30	0.74	0.11
Control Delay	25.5	16.5	40.2	0.5	32.3	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.5	16.5	40.2	0.5	32.3	5.6
Queue Length 50th (ft)	120	66	116	0	244	0
Queue Length 95th (ft)	184	95	177	0	#478	30
Internal Link Dist (ft)		524	262		393	
Turn Bay Length (ft)	250			250		
Base Capacity (vph)	759	3202	1451	1538	701	671
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.11	0.28	0.30	0.74	0.11

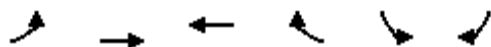
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Unsignalized Intersection Capacity Analysis

3: Kearns Blvd & Old Hwy 40

10/13/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	100	300	750	40	20	50	
Future Volume (Veh/h)	100	300	750	40	20	50	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	109	326	815	43	22	54	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)						6	
Median type		None	None				
Median storage veh							
Upstream signal (ft)		342					
pX, platoon unblocked					0.96		
vC, conflicting volume	858				1196	408	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	858				1118	408	
tC, single (s)	4.2				6.9	7.0	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	86				86	91	
cM capacity (veh/h)	760				161	585	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	109	163	163	408	408	43	76
Volume Left	109	0	0	0	0	0	22
Volume Right	0	0	0	0	0	43	54
cSH	760	1700	1700	1700	1700	1700	557
Volume to Capacity	0.14	0.10	0.10	0.24	0.24	0.03	0.14
Queue Length 95th (ft)	12	0	0	0	0	0	12
Control Delay (s)	10.5	0.0	0.0	0.0	0.0	0.0	17.3
Lane LOS	B						C
Approach Delay (s)	2.6			0.0			17.3
Approach LOS							C
Intersection Summary							
Average Delay			1.8				
Intersection Capacity Utilization			39.6%		ICU Level of Service		A
Analysis Period (min)			15				

Intersection Sign configuration not allowed in HCM analysis.

2020 Existing PM Queue Results

Queues

1: SB On Ramp/SB Off Ramp & Kearns BLVD

10/13/2020



Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	1163	587	120	380	511	478
v/c Ratio	0.89	0.62	0.56	0.22	0.84	0.31
Control Delay	41.1	5.6	31.3	2.4	42.0	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.1	5.6	31.3	2.4	42.0	0.5
Queue Length 50th (ft)	370	0	1	2	294	0
Queue Length 95th (ft)	#571	85	#107	53	376	0
Internal Link Dist (ft)	892			524	544	
Turn Bay Length (ft)		580	250			415
Base Capacity (vph)	1305	948	213	1765	749	1538
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.62	0.56	0.22	0.68	0.31

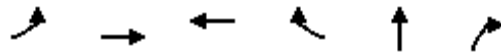
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

2: NB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	750	924	283	359	217	54
v/c Ratio	0.82	0.40	0.25	0.23	0.71	0.15
Control Delay	16.4	5.1	26.7	0.4	50.9	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.4	5.1	26.7	0.4	50.9	0.9
Queue Length 50th (ft)	164	64	69	0	131	0
Queue Length 95th (ft)	m#356	m84	113	0	195	2
Internal Link Dist (ft)		524	262		393	
Turn Bay Length (ft)	250			250		
Base Capacity (vph)	914	2326	1122	1538	465	497
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.40	0.25	0.23	0.47	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

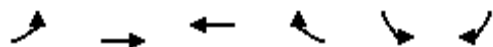
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Unsignalized Intersection Capacity Analysis

3: Kearns Blvd & Old Hwy 40

10/13/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	70	830	450	30	90	140	
Future Volume (Veh/h)	70	830	450	30	90	140	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	76	902	489	33	98	152	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)						6	
Median type		None	None				
Median storage veh							
Upstream signal (ft)		342					
pX, platoon unblocked					0.89		
vC, conflicting volume	522				1092	244	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	522				848	244	
tC, single (s)	4.2				6.9	7.0	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	93				59	80	
cM capacity (veh/h)	1020				242	747	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	76	451	451	244	244	33	250
Volume Left	76	0	0	0	0	0	98
Volume Right	0	0	0	0	0	33	152
cSH	1020	1700	1700	1700	1700	1700	617
Volume to Capacity	0.07	0.27	0.27	0.14	0.14	0.02	0.41
Queue Length 95th (ft)	6	0	0	0	0	0	49
Control Delay (s)	8.8	0.0	0.0	0.0	0.0	0.0	18.4
Lane LOS	A						C
Approach Delay (s)	0.7			0.0			18.4
Approach LOS							C
Intersection Summary							
Average Delay			3.0				
Intersection Capacity Utilization			34.6%		ICU Level of Service		A
Analysis Period (min)			15				

Intersection Sign configuration not allowed in HCM analysis.

2021 AM No Build Queue Results

Queues

1: SB On Ramp/SB Off Ramp & Kearns Blvd

10/13/2020

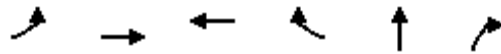


Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	424	120	54	891	261	587
v/c Ratio	0.38	0.21	0.11	0.57	0.55	0.38
Control Delay	16.8	5.4	7.9	11.8	22.4	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.8	5.4	7.9	11.8	22.4	0.7
Queue Length 50th (ft)	57	0	7	90	73	0
Queue Length 95th (ft)	111	33	25	168	149	0
Internal Link Dist (ft)	890			524	544	
Turn Bay Length (ft)		580	250			415
Base Capacity (vph)	2320	1076	764	3356	1174	1538
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.11	0.07	0.27	0.22	0.38
Intersection Summary						

Queues

2: NB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	315	370	413	467	533	76
v/c Ratio	0.69	0.25	0.65	0.30	0.76	0.11
Control Delay	25.5	16.6	40.2	0.5	33.2	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.5	16.6	40.2	0.5	33.2	5.6
Queue Length 50th (ft)	120	68	116	0	252	0
Queue Length 95th (ft)	184	98	177	0	#496	30
Internal Link Dist (ft)		524	262		393	
Turn Bay Length (ft)	250			250		
Base Capacity (vph)	759	3202	1451	1538	701	671
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.12	0.28	0.30	0.76	0.11

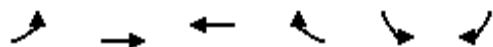
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Unsignalized Intersection Capacity Analysis

3: Kearns Blvd & Old Hwy 40

10/13/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	100	310	760	40	20	50	
Future Volume (Veh/h)	100	310	760	40	20	50	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	109	337	826	43	22	54	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)						6	
Median type		None	None				
Median storage veh							
Upstream signal (ft)		342					
pX, platoon unblocked					0.96		
vC, conflicting volume	869				1212	413	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	869				1129	413	
tC, single (s)	4.2				6.9	7.0	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	86				86	91	
cM capacity (veh/h)	752				158	580	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	109	168	168	413	413	43	76
Volume Left	109	0	0	0	0	0	22
Volume Right	0	0	0	0	0	43	54
cSH	752	1700	1700	1700	1700	1700	545
Volume to Capacity	0.14	0.10	0.10	0.24	0.24	0.03	0.14
Queue Length 95th (ft)	13	0	0	0	0	0	12
Control Delay (s)	10.6	0.0	0.0	0.0	0.0	0.0	17.5
Lane LOS	B						C
Approach Delay (s)	2.6			0.0			17.5
Approach LOS							C
Intersection Summary							
Average Delay			1.8				
Intersection Capacity Utilization			39.9%		ICU Level of Service		A
Analysis Period (min)			15				

Intersection Sign configuration not allowed in HCM analysis.

2021 AM Build Queue Results

Queues

1: SB On Ramp/SB Off Ramp & Kearns Blvd

10/13/2020

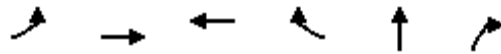


Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	430	120	60	898	264	587
v/c Ratio	0.38	0.21	0.13	0.57	0.56	0.38
Control Delay	17.1	5.4	8.0	11.9	22.6	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.1	5.4	8.0	11.9	22.6	0.7
Queue Length 50th (ft)	58	0	8	92	75	0
Queue Length 95th (ft)	114	34	28	172	153	0
Internal Link Dist (ft)	892			524	548	
Turn Bay Length (ft)		580	250			415
Base Capacity (vph)	2305	1070	761	3347	1166	1538
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.11	0.08	0.27	0.23	0.38
Intersection Summary						

Queues

2: NB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	315	379	425	467	533	127
v/c Ratio	0.69	0.25	0.65	0.30	0.76	0.19
Control Delay	25.7	16.6	40.1	0.5	33.7	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	16.6	40.1	0.5	33.7	7.6
Queue Length 50th (ft)	120	71	121	0	254	10
Queue Length 95th (ft)	183	100	181	0	#506	52
Internal Link Dist (ft)		524	262		393	
Turn Bay Length (ft)	250			250		
Base Capacity (vph)	757	3138	1445	1538	698	681
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.12	0.29	0.30	0.76	0.19

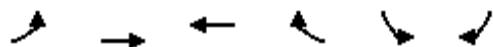
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Unsignalized Intersection Capacity Analysis

3: Kearns Blvd & Old Hwy 40

10/13/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	156	310	760	49	21	61	
Future Volume (Veh/h)	156	310	760	49	21	61	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	170	337	826	53	23	66	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)						6	
Median type		None	None				
Median storage veh							
Upstream signal (ft)		342					
pX, platoon unblocked					0.97		
vC, conflicting volume	879				1334	413	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	879				1280	413	
tC, single (s)	4.2				6.9	7.0	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	77				80	89	
cM capacity (veh/h)	746				115	580	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	170	168	168	413	413	53	89
Volume Left	170	0	0	0	0	0	23
Volume Right	0	0	0	0	0	53	66
cSH	746	1700	1700	1700	1700	1700	444
Volume to Capacity	0.23	0.10	0.10	0.24	0.24	0.03	0.20
Queue Length 95th (ft)	22	0	0	0	0	0	18
Control Delay (s)	11.2	0.0	0.0	0.0	0.0	0.0	20.3
Lane LOS	B						C
Approach Delay (s)	3.8			0.0			20.3
Approach LOS							C
Intersection Summary							
Average Delay			2.5				
Intersection Capacity Utilization			43.0%		ICU Level of Service		A
Analysis Period (min)			15				

Intersection has too many legs for HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis

18: Bus Exit & Old Hwy 40

10/13/2020

						
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	70	0	0	140	0	6
Future Volume (Veh/h)	70	0	0	140	0	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	76	0	0	152	0	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			76		228	76
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			76		228	76
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1504		754	977
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	76	152	7			
Volume Left	0	0	0			
Volume Right	0	0	7			
cSH	1700	1504	977			
Volume to Capacity	0.04	0.00	0.01			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.0	0.0	8.7			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	8.7			
Approach LOS			A			
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization		17.4%		ICU Level of Service		A
Analysis Period (min)		15				

2021 PM No Build Queue Results

Queues

1: SB On Ramp/SB Off Ramp & Kearns Blvd

10/13/2020

	→	↘	↙	←	↓	↗
Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	1185	598	120	380	522	489
v/c Ratio	0.92	0.63	0.57	0.22	0.85	0.32
Control Delay	44.1	5.7	31.4	2.5	42.2	0.5
Queue Delay	1.6	0.0	0.0	0.0	0.0	0.0
Total Delay	45.7	5.7	31.4	2.5	42.2	0.5
Queue Length 50th (ft)	386	0	5	8	299	0
Queue Length 95th (ft)	#587	86	#106	53	387	0
Internal Link Dist (ft)	892			524	544	
Turn Bay Length (ft)		580	250			415
Base Capacity (vph)	1291	951	212	1748	749	1538
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	35	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.63	0.57	0.22	0.70	0.32

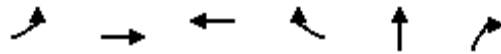
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

2: NB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	761	946	283	370	217	54
v/c Ratio	0.83	0.41	0.25	0.24	0.71	0.15
Control Delay	16.7	5.2	26.7	0.4	50.9	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.7	5.2	26.7	0.4	50.9	0.9
Queue Length 50th (ft)	179	66	69	0	131	0
Queue Length 95th (ft)	m#336	m85	113	0	195	2
Internal Link Dist (ft)		524	262		393	
Turn Bay Length (ft)	250			250		
Base Capacity (vph)	914	2326	1122	1538	465	497
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.41	0.25	0.24	0.47	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

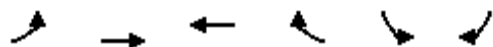
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Unsignalized Intersection Capacity Analysis

3: Kearns Blvd & Old Hwy 40

10/13/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	80	840	460	30	90	140	
Future Volume (Veh/h)	80	840	460	30	90	140	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	87	913	500	33	98	152	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)						6	
Median type		None	None				
Median storage veh							
Upstream signal (ft)		342					
pX, platoon unblocked					0.88		
vC, conflicting volume	533				1130	250	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	533				883	250	
tC, single (s)	4.2				6.9	7.0	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	91				57	79	
cM capacity (veh/h)	1010				226	741	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	87	456	456	250	250	33	250
Volume Left	87	0	0	0	0	0	98
Volume Right	0	0	0	0	0	33	152
cSH	1010	1700	1700	1700	1700	1700	575
Volume to Capacity	0.09	0.27	0.27	0.15	0.15	0.02	0.43
Queue Length 95th (ft)	7	0	0	0	0	0	55
Control Delay (s)	8.9	0.0	0.0	0.0	0.0	0.0	19.6
Lane LOS	A						C
Approach Delay (s)	0.8			0.0			19.6
Approach LOS							C
Intersection Summary							
Average Delay			3.2				
Intersection Capacity Utilization			34.9%		ICU Level of Service		A
Analysis Period (min)			15				

Intersection Sign configuration not allowed in HCM analysis.

2021 PM Build Queue Results

Queues

1: SB On Ramp/SB Off Ramp & Kearns Blvd

10/13/2020



Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	1191	598	198	387	523	489
v/c Ratio	1.04	0.66	0.69	0.22	0.85	0.32
Control Delay	72.3	6.2	43.8	2.2	42.4	0.5
Queue Delay	12.5	0.0	0.0	0.0	0.0	0.0
Total Delay	84.8	6.2	43.8	2.2	42.4	0.5
Queue Length 50th (ft)	~459	0	32	7	300	0
Queue Length 95th (ft)	#591	86	#235	44	388	0
Internal Link Dist (ft)	892			524	548	
Turn Bay Length (ft)		580	250			415
Base Capacity (vph)	1144	910	286	1748	749	1538
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	35	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.07	0.66	0.69	0.22	0.70	0.32

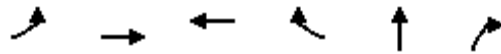
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

2: NB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	761	953	367	374	217	62
v/c Ratio	0.88	0.41	0.33	0.24	0.71	0.17
Control Delay	18.7	5.1	27.5	0.4	50.9	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	5.1	27.5	0.4	50.9	2.1
Queue Length 50th (ft)	233	67	92	0	131	0
Queue Length 95th (ft)	m295	m79	144	0	195	7
Internal Link Dist (ft)		524	262		393	
Turn Bay Length (ft)	250			250		
Base Capacity (vph)	867	2326	1122	1538	465	497
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.41	0.33	0.24	0.47	0.12

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Unsignalized Intersection Capacity Analysis

3: Kearns Blvd & Old Hwy 40

10/13/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	94	840	460	31	103	222	
Future Volume (Veh/h)	94	840	460	31	103	222	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	102	913	500	34	112	241	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)						6	
Median type		None	None				
Median storage (veh)							
Upstream signal (ft)		342					
pX, platoon unblocked					0.88		
vC, conflicting volume	534				1160	250	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	534				916	250	
tC, single (s)	4.2				6.9	7.0	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	90				47	67	
cM capacity (veh/h)	1009				211	741	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	102	456	456	250	250	34	353
Volume Left	102	0	0	0	0	0	112
Volume Right	0	0	0	0	0	34	241
cSH	1009	1700	1700	1700	1700	1700	665
Volume to Capacity	0.10	0.27	0.27	0.15	0.15	0.02	0.53
Queue Length 95th (ft)	8	0	0	0	0	0	78
Control Delay (s)	9.0	0.0	0.0	0.0	0.0	0.0	21.0
Lane LOS	A						C
Approach Delay (s)	0.9			0.0			21.0
Approach LOS							C
Intersection Summary							
Average Delay			4.4				
Intersection Capacity Utilization			35.6%		ICU Level of Service		A
Analysis Period (min)			15				

Intersection has too many legs for HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis

18: Bus Exit & Old Hwy 40

10/13/2020

						
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	230	0	0	110	0	6
Future Volume (Veh/h)	230	0	0	110	0	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	250	0	0	120	0	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			250		370	250
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			250		370	250
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1298		624	781
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	250	120	7			
Volume Left	0	0	0			
Volume Right	0	0	7			
cSH	1700	1298	781			
Volume to Capacity	0.15	0.00	0.01			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.0	0.0	9.6			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	9.6			
Approach LOS			A			
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			22.1%	ICU Level of Service		A
Analysis Period (min)			15			

2026 AM No Build Queue Results

Queues

1: SB On Ramp/SB Off Ramp & Kearns Blvd

10/13/2020

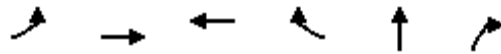


Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	457	130	54	978	293	641
v/c Ratio	0.40	0.22	0.12	0.62	0.60	0.42
Control Delay	17.5	5.2	8.4	13.2	23.6	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.5	5.2	8.4	13.2	23.6	0.8
Queue Length 50th (ft)	65	0	8	110	84	0
Queue Length 95th (ft)	124	35	27	204	176	0
Internal Link Dist (ft)	890			524	544	
Turn Bay Length (ft)		580	250			415
Base Capacity (vph)	2233	1044	742	3301	1130	1538
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.12	0.07	0.30	0.26	0.42
Intersection Summary						

Queues

2: NB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	348	402	446	511	587	87
v/c Ratio	0.75	0.26	0.68	0.33	0.86	0.13
Control Delay	27.6	16.3	41.5	0.6	42.0	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.6	16.3	41.5	0.6	42.0	7.3
Queue Length 50th (ft)	135	75	130	0	307	4
Queue Length 95th (ft)	203	105	195	0	#617	39
Internal Link Dist (ft)		524	262		393	
Turn Bay Length (ft)	250			250		
Base Capacity (vph)	748	3070	1413	1538	682	656
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.13	0.32	0.33	0.86	0.13

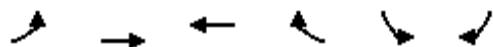
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Unsignalized Intersection Capacity Analysis

3: Kearns Blvd & Old Hwy 40

10/13/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	110	340	820	50	20	60	
Future Volume (Veh/h)	110	340	820	50	20	60	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	120	370	891	54	22	65	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)						6	
Median type		None	None				
Median storage veh							
Upstream signal (ft)		342					
pX, platoon unblocked					0.95		
vC, conflicting volume	945				1316	446	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	945				1227	446	
tC, single (s)	4.2				6.9	7.0	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	83				83	88	
cM capacity (veh/h)	704				131	552	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	120	185	185	446	446	54	87
Volume Left	120	0	0	0	0	0	22
Volume Right	0	0	0	0	0	54	65
cSH	704	1700	1700	1700	1700	1700	519
Volume to Capacity	0.17	0.11	0.11	0.26	0.26	0.03	0.17
Queue Length 95th (ft)	15	0	0	0	0	0	15
Control Delay (s)	11.2	0.0	0.0	0.0	0.0	0.0	18.8
Lane LOS	B						C
Approach Delay (s)	2.7			0.0			18.8
Approach LOS							C
Intersection Summary							
Average Delay			2.0				
Intersection Capacity Utilization			42.1%		ICU Level of Service		A
Analysis Period (min)			15				

Intersection Sign configuration not allowed in HCM analysis.

2026 AM Build Queue Results

Queues

1: SB On Ramp/SB Off Street & Kearns Blvd

10/13/2020

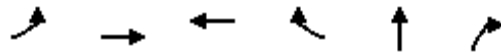


Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	463	130	60	985	297	641
v/c Ratio	0.41	0.22	0.13	0.63	0.60	0.42
Control Delay	17.8	5.3	8.6	13.3	23.8	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.8	5.3	8.6	13.3	23.8	0.8
Queue Length 50th (ft)	67	0	9	112	86	0
Queue Length 95th (ft)	127	36	29	208	180	0
Internal Link Dist (ft)	892			524	548	
Turn Bay Length (ft)		580	250			415
Base Capacity (vph)	2215	1037	739	3285	1121	1538
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.13	0.08	0.30	0.26	0.42
Intersection Summary						

Queues

2: SB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	348	412	458	511	587	138
v/c Ratio	0.75	0.27	0.69	0.33	0.86	0.21
Control Delay	28.0	16.4	41.6	0.6	42.4	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	16.4	41.6	0.6	42.4	9.0
Queue Length 50th (ft)	135	77	134	0	310	15
Queue Length 95th (ft)	203	107	200	0	#620	63
Internal Link Dist (ft)		524	262		393	
Turn Bay Length (ft)	250			300		
Base Capacity (vph)	746	3060	1409	1538	680	666
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.13	0.33	0.33	0.86	0.21

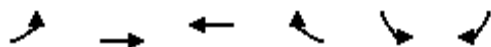
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Unsignalized Intersection Capacity Analysis

3: Kearns Blvd & Old Hwy 40

10/13/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	166	340	820	59	21	71	
Future Volume (Veh/h)	166	340	820	59	21	71	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	180	370	891	64	23	77	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)						6	
Median type		None	None				
Median storage veh							
Upstream signal (ft)		342					
pX, platoon unblocked					0.96		
vC, conflicting volume	955				1436	446	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	955				1372	446	
tC, single (s)	4.2				6.9	7.0	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	74				76	86	
cM capacity (veh/h)	697				95	552	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	180	185	185	446	446	64	100
Volume Left	180	0	0	0	0	0	23
Volume Right	0	0	0	0	0	64	77
cSH	697	1700	1700	1700	1700	1700	413
Volume to Capacity	0.26	0.11	0.11	0.26	0.26	0.04	0.24
Queue Length 95th (ft)	26	0	0	0	0	0	23
Control Delay (s)	11.9	0.0	0.0	0.0	0.0	0.0	22.2
Lane LOS	B						C
Approach Delay (s)	3.9			0.0			22.2
Approach LOS							C
Intersection Summary							
Average Delay			2.7				
Intersection Capacity Utilization			45.2%		ICU Level of Service		A
Analysis Period (min)			15				

Intersection has too many legs for HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis

18: Bus Exit & Old Hwy 40

10/13/2020

						
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	80	0	0	160	0	6
Future Volume (Veh/h)	80	0	0	160	0	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	87	0	0	174	0	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			87		261	87
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			87		261	87
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1490		721	963
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	87	174	7			
Volume Left	0	0	0			
Volume Right	0	0	7			
cSH	1700	1490	963			
Volume to Capacity	0.05	0.00	0.01			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.0	0.0	8.8			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	8.8			
Approach LOS			A			
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization		18.4%		ICU Level of Service		A
Analysis Period (min)		15				

2026 AM Build Mitigation 1 Queue Results

Queues

1: SB On Ramp/SB Off Street & Kearns Blvd

10/13/2020

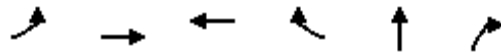


Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	463	130	60	985	297	641
v/c Ratio	0.41	0.22	0.13	0.63	0.60	0.42
Control Delay	17.8	5.3	8.6	13.3	23.8	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.8	5.3	8.6	13.3	23.8	0.8
Queue Length 50th (ft)	67	0	9	112	86	0
Queue Length 95th (ft)	127	36	29	208	180	0
Internal Link Dist (ft)	892			524	548	
Turn Bay Length (ft)		580				415
Base Capacity (vph)	2215	1037	739	3285	1121	1538
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.13	0.08	0.30	0.26	0.42
Intersection Summary						

Queues

2: SB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	348	412	458	511	587	138
v/c Ratio	0.75	0.27	0.69	0.33	0.86	0.21
Control Delay	28.0	16.4	41.6	0.6	42.4	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	16.4	41.6	0.6	42.4	9.0
Queue Length 50th (ft)	135	77	134	0	310	15
Queue Length 95th (ft)	203	107	200	0	#620	63
Internal Link Dist (ft)		524	262		393	
Turn Bay Length (ft)				300		
Base Capacity (vph)	746	3060	1409	1538	680	666
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.13	0.33	0.33	0.86	0.21

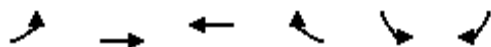
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Unsignalized Intersection Capacity Analysis

3: Kearns Blvd & Old Hwy 40

10/13/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	166	340	820	59	21	71	
Future Volume (Veh/h)	166	340	820	59	21	71	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	180	370	891	64	23	77	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)						6	
Median type		None	None				
Median storage veh							
Upstream signal (ft)		342					
pX, platoon unblocked					0.96		
vC, conflicting volume	955				1436	446	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	955				1372	446	
tC, single (s)	4.2				6.9	7.0	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	74				76	86	
cM capacity (veh/h)	697				95	552	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	180	185	185	446	446	64	100
Volume Left	180	0	0	0	0	0	23
Volume Right	0	0	0	0	0	64	77
cSH	697	1700	1700	1700	1700	1700	413
Volume to Capacity	0.26	0.11	0.11	0.26	0.26	0.04	0.24
Queue Length 95th (ft)	26	0	0	0	0	0	23
Control Delay (s)	11.9	0.0	0.0	0.0	0.0	0.0	22.2
Lane LOS	B						C
Approach Delay (s)	3.9			0.0			22.2
Approach LOS							C
Intersection Summary							
Average Delay			2.7				
Intersection Capacity Utilization			45.2%		ICU Level of Service		A
Analysis Period (min)			15				

Intersection has too many legs for HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis

18: Bus Exit & Old Hwy 40

10/13/2020

						
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	80	0	0	160	0	6
Future Volume (Veh/h)	80	0	0	160	0	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	87	0	0	174	0	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			87		261	87
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			87		261	87
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1490		721	963
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	87	174	7			
Volume Left	0	0	0			
Volume Right	0	0	7			
cSH	1700	1490	963			
Volume to Capacity	0.05	0.00	0.01			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.0	0.0	8.8			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	8.8			
Approach LOS			A			
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			18.4%	ICU Level of Service		A
Analysis Period (min)			15			

2026 AM Build Mitigation 2 Queue Results

Queues

1: SB On Ramp/SB Off Street & Kearns Blvd

10/13/2020

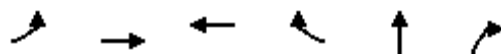


Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	463	130	60	985	297	641
v/c Ratio	0.40	0.22	0.13	0.64	0.59	0.42
Control Delay	17.4	5.2	8.9	13.7	23.0	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.4	5.2	8.9	13.7	23.0	0.8
Queue Length 50th (ft)	66	0	9	112	85	0
Queue Length 95th (ft)	124	34	30	214	176	0
Internal Link Dist (ft)	892			524	548	
Turn Bay Length (ft)		580	250			415
Base Capacity (vph)	2710	1239	461	3164	1291	1538
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.10	0.13	0.31	0.23	0.42
Intersection Summary						

Queues

2: SB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020

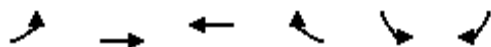


Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	348	412	458	511	587	138
v/c Ratio	0.64	0.28	0.65	0.33	0.82	0.19
Control Delay	47.1	20.5	43.1	0.6	36.2	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.1	20.5	43.1	0.6	36.2	4.3
Queue Length 50th (ft)	100	82	134	0	301	2
Queue Length 95th (ft)	202	165	252	0	543	38
Internal Link Dist (ft)		524	262		393	
Turn Bay Length (ft)	250			300		
Base Capacity (vph)	766	2055	1053	1538	1208	1120
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.20	0.43	0.33	0.49	0.12
Intersection Summary						

HCM Unsignalized Intersection Capacity Analysis

3: Kearns Blvd & Old Hwy 40

10/13/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	166	340	820	59	21	71	
Future Volume (Veh/h)	166	340	820	59	21	71	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	180	370	891	64	23	77	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)						6	
Median type		None	None				
Median storage veh							
Upstream signal (ft)		342					
pX, platoon unblocked					0.96		
vC, conflicting volume	955				1436	446	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	955				1366	446	
tC, single (s)	4.2				6.9	7.0	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	74				76	86	
cM capacity (veh/h)	697				96	552	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	180	185	185	446	446	64	100
Volume Left	180	0	0	0	0	0	23
Volume Right	0	0	0	0	0	64	77
cSH	697	1700	1700	1700	1700	1700	416
Volume to Capacity	0.26	0.11	0.11	0.26	0.26	0.04	0.24
Queue Length 95th (ft)	26	0	0	0	0	0	23
Control Delay (s)	11.9	0.0	0.0	0.0	0.0	0.0	22.1
Lane LOS	B						C
Approach Delay (s)	3.9			0.0			22.1
Approach LOS							C
Intersection Summary							
Average Delay			2.7				
Intersection Capacity Utilization			45.2%		ICU Level of Service		A
Analysis Period (min)			15				

Intersection has too many legs for HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis

18: Bus Exit & Old Hwy 40

10/13/2020

						
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	80	0	0	160	0	6
Future Volume (Veh/h)	80	0	0	160	0	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	87	0	0	174	0	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			87		261	87
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			87		261	87
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1490		721	963
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	87	174	7			
Volume Left	0	0	0			
Volume Right	0	0	7			
cSH	1700	1490	963			
Volume to Capacity	0.05	0.00	0.01			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.0	0.0	8.8			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	8.8			
Approach LOS			A			
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			18.4%	ICU Level of Service		A
Analysis Period (min)			15			

2026 PM No Build Queue Results

Queues

1: SB On Ramp/SB Off Ramp & Kearns Blvd

10/13/2020



Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	1293	663	130	435	576	543
v/c Ratio	1.07	0.68	0.62	0.26	0.88	0.35
Control Delay	78.3	6.3	34.3	3.1	43.5	0.6
Queue Delay	14.3	0.0	0.0	0.0	0.0	0.0
Total Delay	92.7	6.3	34.3	3.1	43.5	0.6
Queue Length 50th (ft)	~528	0	22	35	325	0
Queue Length 95th (ft)	#664	93	#106	54	447	0
Internal Link Dist (ft)	892			524	544	
Turn Bay Length (ft)		580	250			415
Base Capacity (vph)	1214	972	210	1667	749	1538
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	60	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.12	0.68	0.62	0.26	0.77	0.35

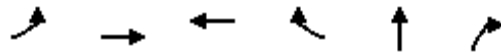
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

2: NB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	837	1033	315	402	250	65
v/c Ratio	0.95	0.46	0.30	0.26	0.74	0.17
Control Delay	24.5	5.6	28.6	0.4	50.4	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.5	5.6	28.6	0.4	50.4	2.2
Queue Length 50th (ft)	257	77	80	0	151	0
Queue Length 95th (ft)	m#575	m87	129	0	217	10
Internal Link Dist (ft)		524	262		393	
Turn Bay Length (ft)	250			250		
Base Capacity (vph)	878	2261	1058	1538	465	497
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.46	0.30	0.26	0.54	0.13

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

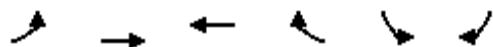
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Unsignalized Intersection Capacity Analysis

3: Kearns Blvd & Old Hwy 40

10/13/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	80	930	510	30	100	150	
Future Volume (Veh/h)	80	930	510	30	100	150	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	87	1011	554	33	109	163	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)						6	
Median type		None	None				
Median storage (veh)							
Upstream signal (ft)		342					
pX, platoon unblocked					0.86		
vC, conflicting volume	587				1234	277	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	587				940	277	
tC, single (s)	4.2				6.9	7.0	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	91				46	77	
cM capacity (veh/h)	964				200	711	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	87	506	506	277	277	33	272
Volume Left	87	0	0	0	0	0	109
Volume Right	0	0	0	0	0	33	163
cSH	964	1700	1700	1700	1700	1700	500
Volume to Capacity	0.09	0.30	0.30	0.16	0.16	0.02	0.54
Queue Length 95th (ft)	7	0	0	0	0	0	81
Control Delay (s)	9.1	0.0	0.0	0.0	0.0	0.0	24.0
Lane LOS	A						C
Approach Delay (s)	0.7			0.0			24.0
Approach LOS							C
Intersection Summary							
Average Delay			3.7				
Intersection Capacity Utilization			37.9%		ICU Level of Service		A
Analysis Period (min)			15				

Intersection Sign configuration not allowed in HCM analysis.

2026 PM Build Queue Results

Queues

1: SB On Ramp/SB Off Ramp & Kearns Blvd

10/13/2020



Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	1300	663	209	441	577	543
v/c Ratio	1.20	0.71	0.76	0.26	0.88	0.35
Control Delay	131.1	6.9	49.3	2.8	43.5	0.6
Queue Delay	0.3	0.0	0.0	0.0	0.0	0.0
Total Delay	131.4	6.9	49.3	2.8	43.5	0.6
Queue Length 50th (ft)	~536	0	83	30	325	0
Queue Length 95th (ft)	#669	93	#211	45	448	0
Internal Link Dist (ft)	892			524	548	
Turn Bay Length (ft)		580	250			415
Base Capacity (vph)	1084	939	274	1666	749	1538
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	60	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.27	0.71	0.76	0.26	0.77	0.35

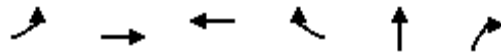
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

2: NB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	837	1040	400	407	250	73
v/c Ratio	1.01	0.46	0.38	0.26	0.74	0.19
Control Delay	30.3	5.4	29.6	0.4	50.4	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.3	5.4	29.6	0.4	50.4	3.2
Queue Length 50th (ft)	~316	77	104	0	151	0
Queue Length 95th (ft)	m#140	m81	162	0	217	14
Internal Link Dist (ft)		524	262		393	
Turn Bay Length (ft)	250			250		
Base Capacity (vph)	828	2261	1058	1538	465	497
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.46	0.38	0.26	0.54	0.15

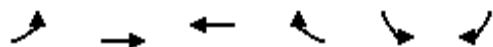
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Unsignalized Intersection Capacity Analysis

3: Kearns Blvd & Old Hwy 40

10/13/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	94	930	510	31	113	232	
Future Volume (Veh/h)	94	930	510	31	113	232	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	102	1011	554	34	123	252	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)						6	
Median type		None	None				
Median storage (veh)							
Upstream signal (ft)		342					
pX, platoon unblocked					0.86		
vC, conflicting volume	588				1264	277	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	588				974	277	
tC, single (s)	4.2				6.9	7.0	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	89				34	65	
cM capacity (veh/h)	963				187	711	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	102	506	506	277	277	34	375
Volume Left	102	0	0	0	0	0	123
Volume Right	0	0	0	0	0	34	252
cSH	963	1700	1700	1700	1700	1700	570
Volume to Capacity	0.11	0.30	0.30	0.16	0.16	0.02	0.66
Queue Length 95th (ft)	9	0	0	0	0	0	120
Control Delay (s)	9.2	0.0	0.0	0.0	0.0	0.0	26.7
Lane LOS	A						D
Approach Delay (s)	0.8			0.0			26.7
Approach LOS							D
Intersection Summary							
Average Delay			5.3				
Intersection Capacity Utilization			38.6%		ICU Level of Service		A
Analysis Period (min)			15				

Intersection has too many legs for HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis

18: Bus Exit & Old Hwy 40

10/13/2020

						
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	250	0	0	110	0	6
Future Volume (Veh/h)	250	0	0	110	0	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	272	0	0	120	0	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			272		392	272
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			272		392	272
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1274		606	760
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	272	120	7			
Volume Left	0	0	0			
Volume Right	0	0	7			
cSH	1700	1274	760			
Volume to Capacity	0.16	0.00	0.01			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.0	0.0	9.8			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	9.8			
Approach LOS			A			
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			23.2%	ICU Level of Service		A
Analysis Period (min)			15			

2026 PM Build Mitigation 1 Queue Results

Queues

1: SB On Ramp/SB Off Ramp & Kearns Blvd

10/13/2020

	→	↘	↙	←	↓	↗
Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	1300	663	209	441	577	543
v/c Ratio	0.96	0.66	0.95	0.24	1.00	0.35
Control Delay	47.0	5.3	79.5	2.9	72.1	0.6
Queue Delay	3.4	0.0	0.0	0.0	0.0	0.0
Total Delay	50.4	5.3	79.5	2.9	72.1	0.6
Queue Length 50th (ft)	417	0	99	38	364	0
Queue Length 95th (ft)	#570	73	#193	33	#593	0
Internal Link Dist (ft)	892			524	548	
Turn Bay Length (ft)		580				415
Base Capacity (vph)	1354	1007	220	1829	577	1538
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	33	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.66	0.95	0.24	1.00	0.35

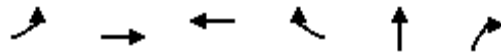
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

2: NB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	837	1040	400	407	250	73
v/c Ratio	1.01	0.46	0.38	0.26	0.74	0.19
Control Delay	39.3	7.2	29.6	0.4	50.4	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.3	7.2	29.6	0.4	50.4	3.2
Queue Length 50th (ft)	~342	106	104	0	151	0
Queue Length 95th (ft)	m#517	m109	162	0	217	14
Internal Link Dist (ft)		524	262		393	
Turn Bay Length (ft)				250		
Base Capacity (vph)	828	2261	1058	1538	465	497
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.46	0.38	0.26	0.54	0.15

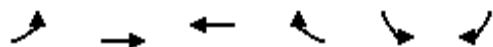
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Unsignalized Intersection Capacity Analysis

3: Kearns Blvd & Old Hwy 40

10/13/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	94	930	510	31	113	232	
Future Volume (Veh/h)	94	930	510	31	113	232	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	102	1011	554	34	123	252	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)						6	
Median type		None	None				
Median storage (veh)							
Upstream signal (ft)		342					
pX, platoon unblocked					0.86		
vC, conflicting volume	588				1264	277	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	588				974	277	
tC, single (s)	4.2				6.9	7.0	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	89				34	65	
cM capacity (veh/h)	963				187	711	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	102	506	506	277	277	34	375
Volume Left	102	0	0	0	0	0	123
Volume Right	0	0	0	0	0	34	252
cSH	963	1700	1700	1700	1700	1700	570
Volume to Capacity	0.11	0.30	0.30	0.16	0.16	0.02	0.66
Queue Length 95th (ft)	9	0	0	0	0	0	120
Control Delay (s)	9.2	0.0	0.0	0.0	0.0	0.0	26.7
Lane LOS	A						D
Approach Delay (s)	0.8			0.0			26.7
Approach LOS							D
Intersection Summary							
Average Delay			5.3				
Intersection Capacity Utilization			38.6%		ICU Level of Service		A
Analysis Period (min)			15				

Intersection has too many legs for HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis

18: Bus Exit & Old Hwy 40

10/13/2020

						
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	250	0	0	110	0	6
Future Volume (Veh/h)	250	0	0	110	0	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	272	0	0	120	0	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			272		392	272
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			272		392	272
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1274		606	760
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	272	120	7			
Volume Left	0	0	0			
Volume Right	0	0	7			
cSH	1700	1274	760			
Volume to Capacity	0.16	0.00	0.01			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.0	0.0	9.8			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	9.8			
Approach LOS			A			
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			23.2%	ICU Level of Service		A
Analysis Period (min)			15			

2026 PM Build Mitigation 2 Queue Results

Queues

1: SB On Ramp/SB Off Ramp & Kearns Blvd

10/13/2020



Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	1300	663	209	441	577	543
v/c Ratio	0.96	0.66	0.95	0.24	1.00	0.35
Control Delay	47.0	5.3	72.4	13.0	72.1	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	5.3	72.4	13.0	72.1	0.6
Queue Length 50th (ft)	417	0	83	75	364	0
Queue Length 95th (ft)	#570	73	#227	104	#593	0
Internal Link Dist (ft)	892			524	548	
Turn Bay Length (ft)		580	250			415
Base Capacity (vph)	1354	1007	220	1829	577	1538
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.66	0.95	0.24	1.00	0.35

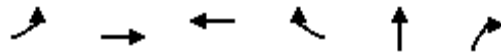
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

2: NB Off Ramp/NB On Ramp & Kearns Blvd

10/13/2020



Lane Group	EBL	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	837	1040	400	407	250	73
v/c Ratio	0.86	0.48	0.44	0.26	0.75	0.18
Control Delay	37.8	9.4	27.3	0.4	44.8	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	9.4	27.3	0.4	44.8	1.4
Queue Length 50th (ft)	202	137	89	0	116	0
Queue Length 95th (ft)	#302	192	135	0	191	4
Internal Link Dist (ft)		524	262		393	
Turn Bay Length (ft)	250			250		
Base Capacity (vph)	971	2148	902	1538	386	453
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.48	0.44	0.26	0.65	0.16

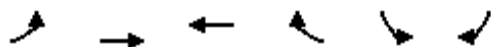
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Unsignalized Intersection Capacity Analysis

3: Kearns Blvd & Old Hwy 40

10/13/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	94	930	510	31	113	232	
Future Volume (Veh/h)	94	930	510	31	113	232	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	102	1011	554	34	123	252	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)						6	
Median type		None	None				
Median storage veh							
Upstream signal (ft)		342					
pX, platoon unblocked					0.84		
vC, conflicting volume	588				1264	277	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	588				943	277	
tC, single (s)	4.2				6.9	7.0	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	89				36	65	
cM capacity (veh/h)	963				193	711	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	102	506	506	277	277	34	375
Volume Left	102	0	0	0	0	0	123
Volume Right	0	0	0	0	0	34	252
cSH	963	1700	1700	1700	1700	1700	588
Volume to Capacity	0.11	0.30	0.30	0.16	0.16	0.02	0.64
Queue Length 95th (ft)	9	0	0	0	0	0	113
Control Delay (s)	9.2	0.0	0.0	0.0	0.0	0.0	25.6
Lane LOS	A						D
Approach Delay (s)	0.8			0.0			25.6
Approach LOS							D
Intersection Summary							
Average Delay			5.1				
Intersection Capacity Utilization			38.6%		ICU Level of Service		A
Analysis Period (min)			15				

Intersection has too many legs for HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis

18: Bus Exit & Old Hwy 40

10/13/2020

						
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	250	0	0	110	0	6
Future Volume (Veh/h)	250	0	0	110	0	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	272	0	0	120	0	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			272		392	272
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			272		392	272
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1274		606	760
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	272	120	7			
Volume Left	0	0	0			
Volume Right	0	0	7			
cSH	1700	1274	760			
Volume to Capacity	0.16	0.00	0.01			
Queue Length 95th (ft)	0	0	1			
Control Delay (s)	0.0	0.0	9.8			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	9.8			
Approach LOS			A			
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			23.2%	ICU Level of Service		A
Analysis Period (min)			15			



STAFF REPORT

To: Summit County Council
From: Brandon Brady, Summit County Engineering
Date of Meeting: February 16, 2022
Type of Item: Summit County Long Range Transportation Plan and Transportation Impact Fee Study

Background:

Summit County currently has two different transportation master plans, Eastern Summit County Transportation Plan from 2013 and Snyderville Basin Transportation Master Plan from 2009. There was also a Snyderville Basin Long Range Transportation Plan titled *Summary of Existing Conditions and Short-Term Needs Identification Study* completed by Fehr & Peers in 2014. High Valley Transit, Summit County Public Works Department, and the Summit County Engineering Department have worked together to update these previous studies and combine them into one Master Plan that encompasses the whole County.

In 2008, Summit County established transportation impact fees with Ordinance 652A. There was a fee analysis done by Lewis Young Robertson & Birmingham, Inc. that established a cost per PM peak hour trip of \$1,924.38. This fee is currently only assessed within the Basin Transportation Impact Fee Area (see Figure 1). These fees can currently only be used within the Basin Transportation Impact Fee Area for projects that improve roadway capacity. High Valley Transit, Summit County Public Works Department, and the Summit County Engineering Department worked with Hales Engineering and Zions Public Finance, Inc. to complete an Impact Fee study that calculated the maximum impact fee that the County can assess on each side of the County.

Summary:

Long Range Transportation Master Plan

The Summit County Long Range Transportation Plan (LRTP) addresses the transportation needs and identifies projects from 2020-2050. This plan specifically looks at roadway and trail projects and puts them into 3 phases: Phase I 2020-2030, Phase II 2030-2040 and Phase III 2040-2050. Roadway capacity projects were identified using Summit County Travel Demand Model for a high level screening to show when roadways would be approaching the level of service (LOS) threshold identified in Summit County Code 10-4-10.K.2. The LOS standards in the County are defined as “the operational character that shall be maintained for roadways and intersections in the Snyderville Basin shall be a level of service C for county roads and intersections and a level of service D for state roads.” After roadways were identified in the model, further analysis was performed by reviewing older transportation plans, UDOT studies, and traffic impact studies submitted by developers to create a list of roadway projects that address capacity,

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safety, and connectivity. Trail projects, from the list of priority projects in the adopted Active Transportation Plan were included on the LRTP. These projects are shown in Appendix A.

The project from Phase I (2020-2030) were ranked by Summit County Public Works and Engineering Departments using the following criteria listed below in Table 1.

Table 1: Ranking Criteria

Criteria	Score	Multiplier	Total	Description
Safety	2	2.0		Addresses locations with high rates of bicycle/pedestrian/vehicle interaction or identified as uncomfortable by the public (multiple times)
	1			Addresses locations with moderate rates of bicycle/pedestrian/vehicle interactions or identified as uncomfortable by the public (once)
	0			Does not address locations with bicycle/pedestrian/vehicle interaction nor those identified as uncomfortable by the public
Connectivity to destinations or bike/pedestrian facilities	2	1.0		Provides a new connection to multiple community destinations like parks, schools, libraries, or other civic destinations that connects directly to multiple existing trails or bike facilities
	1			Provides a new connection to one community destination like a park, school, library, or other civic destination
	0			Does not provide a new connection to community destinations
Creates additional bike/ped/transit facility	2	3.0		Creates a secondary opportunity to add significant bicycle/pedestrian/ transit facilities
	1			Creates a secondary opportunity to add a single bicycle/pedestrian/transit facilities
	0			No opportunity to add a single bicycle/pedestrian/transit facilities
Access to transit	2	2.0		Provides direct access to transit or improves transit mobility
	0			Does not provide direct access to transit or improve transit mobility
Public support	2	1.0		Identified by the public as desirable for a future facility (multiple times)
	1			Identified by the public as desirable for a future facility (once)
	0			Was not identified by the public as desirable for a future facility
Equity	2	1.0		Directly connects to multiple affordable housing developments
	1			Directly connects to one affordable housing development
	0			Does not directly connect to affordable housing
Regional significance/Economic competitiveness	2	3.0		Connects to interstate, state highway, or direct access to industry cluster
	1			Secondary connection to interstate, state highway, or direct access to industry cluster
	0			Does not connect to interstate, state highway, or directly to industry cluster
Ease of implementation	2	2.0		Modest investment required and few barriers to implementation
	1			Moderate investment required and several barriers to implementation
	0			Substantial investment required and significant barriers to implementation
State of Good Repair	2	1.0		Improves existing infrastructure level of service (LOS)
	0			Does not improve existing infrastructure level of Service (LOS)
Quality of Communities	2	1.0		Significantly addresses unmet needs in local or regional land use/general plans
	1			Aligns with local or regional land use/general plans
	0			Does not address unmet needs in local or regional land use/general plans
Sustainability	2	2.0		Includes project components that comply with County Executive Order 2016-01
	0			Does not include project components that comply with Summit County Executive Order 2016-01
Funding	2	2.0		Qualifies for other-than local funding
	0			Does not qualify for other-than local funding
Reduces Congestion	2	3.0		Significantly reduces congestion
	1			Moderately reduces congestion
	0			Does not reduce congestion

Table 2 lists the projects in order from the highest to lowest ranking.

Table 2: Project Ranking

Grade separate Olympic Pkwy/Newpark Blvd at SR-224	38
Grade separate Ute Blvd at SR-224	38
Extend Landmark Dr	34
Landmark Dr widening	33
Bitner to Silver Creek new road	33
Upgrade Silver Creek Dr / Pace Frontage Rd roundabout to dual-lane roundabout	33
Realignment of Old Hwy 40 at SR-248	30
Silver Creek Drive widening	28
South Hoytsville Rd improvements	28
Sidepath in conjunction with Bitner to Silver Creek new road	27
New Old Ranch Rd Sidepath	27
Silver Summit Parkway Sidepath	26
SR-32 Pathway	25
McCleod Creek / Willow Creek Loop / East SR-224 Trail	25
Pace Frontage Road widening	22
Promontory Ranch Rd /Silver Creek Dr intersection improvements	22
SR-224 rail reconstruction (east side)	22
Rail Trail Pavement Upgrade	22
Blue Sky bridge to Rail Trail	22
Upgrade I-80 Pedestrian Bike Tunnel	20
Democrat Alley alignment and paving	15
Lower River Rd/South Willow Way intersection improvements	14
Weber Canyon Rd widening	12
Hallam Road extension	12

This ranking does not require the projects to be constructed in this order, but simply puts a ranking to the projects for importance. For example, if a project gets funding before another project or if an area is developing faster, a lower ranked project may be constructed prior to projects that were ranked higher.

Transportation Impact Fee Study

This impact fee study has two components. The first component is the Transportation Impact Fee Facilities Plan (IFFP) that was completed by Hales Engineering. The second component is the Transportation Impact Fee Analysis (IFA) that was completed by Zions Public Finance, Inc. Currently the transportation impact fees are only assessed in Basin Transportation Impact Fee Area as shown in Figure 1. The increased development on the east side of the County will have impacts on the infrastructure so it was included in the study. Both the IFFP and IFA separate the County into two different service areas to assess a fee on both sides of the County. No city or state projects can be included in these studies. Below are the maps of both areas in the study and where they are delineated.



SUMMIT COUNTY, UTAH

LONG RANGE TRANSPORTATION PLAN 2020-2050



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INTRODUCTION

About the Summit County Long Range Transportation Plan, 2020-2050

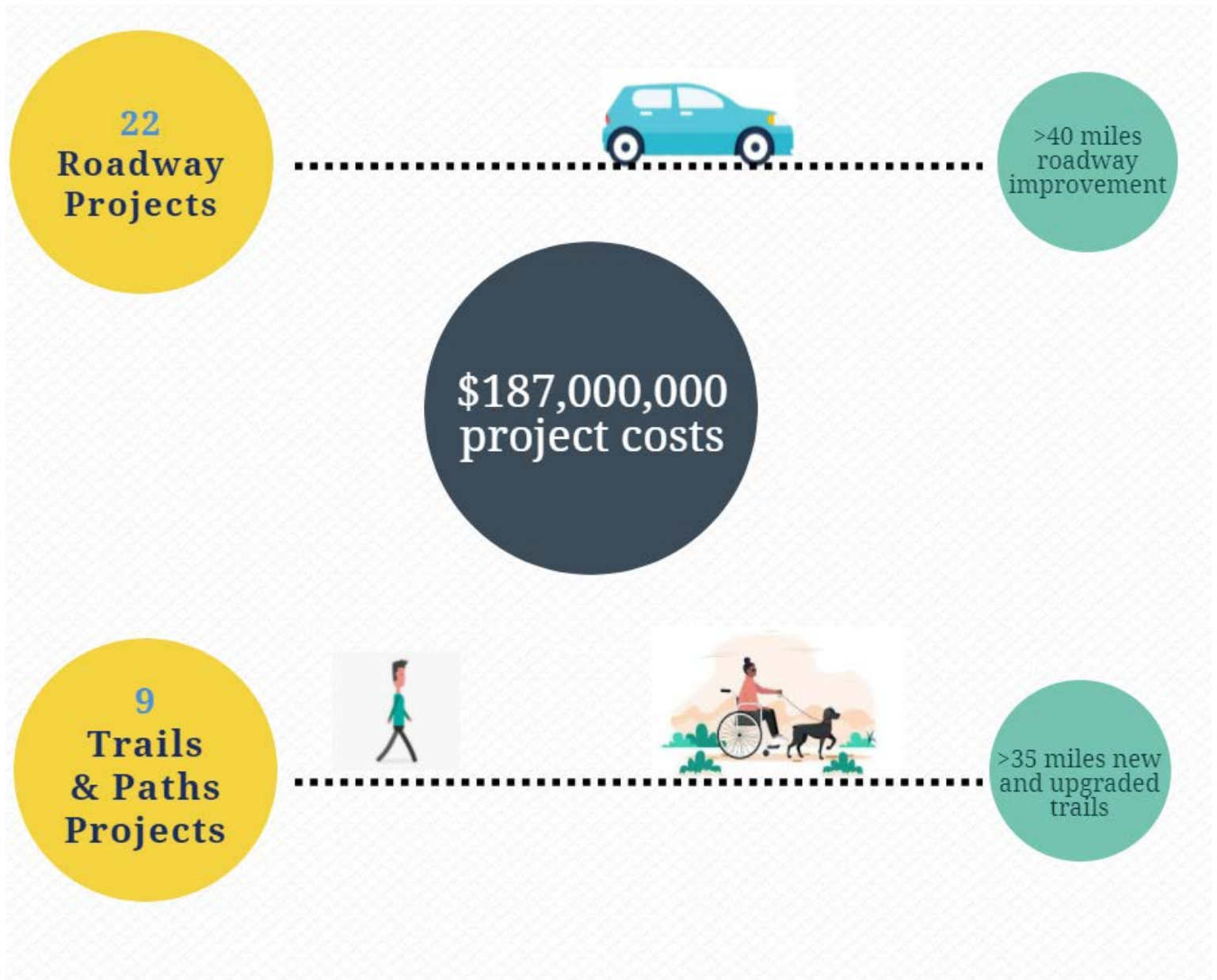
This Summit County Long Range Transportation Plan (LRTP) identifies responsible investments to facilitate the movement of people and goods to, from, and within Summit County¹ between the years 2020 and 2050, given existing available technology and reasonable funding expectations. It was adopted by the Summit County Council on MM DD, YY.

The priority projects in this Long Range Transportation Plan were selected to address anticipated population increases and to mitigate safety conflicts in areas throughout the County. They are primarily new roads or roadway improvements that will provide capacity. A subsequent update to this LRTP will emphasize development of transit, active transportation, and transportation demand management (TDM) strategies as these are the core focus of studies in progress at the time of the adoption of this document. However, several priority projects identified in the Summit County's Active Transportation Plan adopted in 2019 are referenced in the Final Projects list of this 2022 LRTP.

The recommended list of detailed projects and their phasing is found on Tables 8-12 on pages 41-44 and Figures 11-13 on pages 46-48. These projects were identified through Summit County's Travel Demand Model ("Model") and are seen as essential to supporting communities as their populations grow. The transportation needs identified in this LRTP are coordinated with those of the Eastern Summit County General Plan ([found here](#)) and the Snyderville Basin General Plan ([found here](#)) both adopted in 2021.

All projects within this LRTP are deemed important and ones the County would like to build if money becomes available at any point during the planning horizon. This document is the result of coordination between leaders and community members who all recognized the uniquely special place Summit County is and aim to be progressive and innovative in providing for the people who live, work, and visit the region.

The Long Range Transportation Plan is updated every four years to mirror the Utah Department of Transportation (UDOT) standards to account for changes in needs and desires and newly available trends and technologies. Revisions can be made between plan updates provided they are supported by the Model, Council-adopted entitlements, data, and the community. The current LRTP was assembled based on existing entitlements and published data, and with input from technical partners.



GOALS AND FRAMEWORK

The goal of the LRTP is to create a program of transportation infrastructure projects that communicate Summit County's immediately identifiable investment priorities to the public, local and regional stakeholders, and funding agencies. Planners and engineers involved in creating the document strive for a multimodal transportation network based on the recognized and forecasted need to solve traffic issues and move people. Seasonal and year-round population pressures continue to increase and finding solutions to the resulting challenges is a priority. Summit County's adopted mission, vision, and goal statements created the framework for the study and approval of the transportation projects in this document with recognition of the interrelationship between transportation and other regional priorities. Projects chosen will require minimal tradeoffs between accommodating rapid growth and protecting communities.

Summit County Mission

Provide excellent, ethical, efficient services that ensure ***quality of life for present and future generations.***

Summit County Vision Statement

Summit County is a vital community that is renowned for its ***natural beauty***, quality of life, and economic diversity, that supports a healthy, prosperous, and culturally-diverse citizenry.

Summit County Values Statement

Regional Collaboration: Work with our federal, state, municipal and community partners.

Responsive: Take action in a timely manner, meeting the needs of our citizens.

Preservation: Preserve our land, water, air, and culture.

Leadership: Motivate others to collaboratively achieve goals.

Summit County Transportation Goal

The County will plan for and make improvements to our transportation system to ***reduce traffic congestion.***

The County's elected officials have made clear a desire to manage the pressures from economic and population growth. Environmental stewardship, access to healthy lifestyles, and an economy based on tourism and recreation are only a few areas where transportation is central to decision making and successful outcomes. A measured and guided planning process for major transportation investments is essential in presenting opportunities for a healthy future community. Summit County will coordinate with other regional entities to fund and construct projects that promote its Mission, Vision, and Goals.

ABOUT SUMMIT COUNTY

Summit County was organized in 1854 and is located in the Wasatch Back region of northern Utah. Home to 1,882 square miles of predominately rugged mountain terrain providing access to 39 of the highest mountain peaks in Utah and much of the High Uintas Wilderness Area, which belongs to the Wasatch-Cache National Forest, Summit County lives up to its name. It is bordered by Rich County to the north, Morgan County to the northwest, Salt Lake County on the west, Wasatch and Duchesne counties on the south, and Daggett County on the east. The County includes the cities of Coalville (county seat), Kamas, Oakley, Park City, Francis, and Henefer. In addition, there are ten census-designated places: Echo, Hoytsville, Marion, Peoa, Samak, Silver Summit, Snyderville, Summit Park, Wanship, and Woodland.

The County was known for its mining and farming operations for most of its existence. But the 1960s opening of Treasure Mountain Ski Resort transformed the region. Summit County has since become synonymous with the outdoor industry.

The 2002 Winter Olympics brought increased attention as Summit County was host to over 40 percent of the Olympic activities at our world class facilities at Park City Mountain (PCM, previously Treasure Mountain), Deer Valley Resort, and the Utah Olympic Park (UOP). Likewise, the Canyons Village area of PCM, is rapidly becoming an epicenter of winter and summer events for the County, while the Utah Olympic Park and Woodward sports complex add increased perennial recreational opportunities. And Kamas city, "the Gateway to the Uintas", has, for years, been the primary access to mountain lands and open spaces that also draw recreationists from around the globe. Roads in Kamas funnel thousands of cyclists, hikers, campers, anglers, hunters, and day-trippers taking advantage of the beautiful Uinta Mountains during warmer seasons. Many now think of Summit County as a premier, year-round recreation destination, bringing thousands of people each day. It has become a getaway for many looking to enjoy its bucolic scenery, outdoor activities, and distinctive arts and cultural opportunities.

CITIES AND PLACES

Four cities, two towns, and ten census-designated places are home to the approximate 43,000 full time, permanent Summit County residents and a diverse and growing economy. In general, these cities, towns, and places are located in what is referred to as either eastern Summit County or western Summit County. Eastern and western Summit are, for the most part, the distinct halves of the county where different patterns of development and population growth have emerged.

Eastern Summit County refers to the cities, towns, and unincorporated areas that are primarily rural residential or agricultural: Coalville, Francis, Henefer, Kamas, Oakley, Wanship, Marion, and

Woodland. This area of the County maintains a more rural and agrarian culture and a stable residential base but with less commercial activity than the west area of the county. It also contains many of the public lands and recreation areas that attract much of the outdoor tourism in warmer months. While the physical land in the east makes up 95 percent of total County land mass, the communities in eastern Summit County are not individually populous. Each is distinct in its desire to grow or change beyond its current character with some anticipating new housing and commercial developments and others proactively working to preserve open space and limit growth. By 2050 the total population of those living in the east side of the county is predicted to more than double.

The Eastern Summit Planning District is responsible for making recommendations to the County Council regarding land use, ordinances, and development codes in the unincorporated areas surrounding the cities of eastern Summit County and enforcing those adopted.

Western Summit County generates most of the County's economic activity and is where population densities are highest, especially within Park City's municipal boundaries. It also contains the County's major employment centers and all the County's winter ski resort activity.

A key attractor in Western Summit includes the area referred to as Snyderville Basin (the Basin). The Basin encompasses a main center of economic activity and one of the County's three ski resorts. The Kimball Junction interchange that serves as the primary entryway for commuters and visitors is located at the heart of the Basin and provides direct access to large nodes of commercial, retail, hotel, and office spaces. Other unincorporated Census Designated Place(s) (CDP) within areas in West Summit, include many surrounding subdivisions and neighborhoods that house the largest percentage of residents and households in the County. Like the eastern half of the County, the Snyderville Basin is projected to experience high population growth by 2050, though not to the levels expected in the eastern half of the County. This can be partially attributed to the lack of physical land available for housing development within the western piece of the County.

Park City is the only incorporated city within Western Summit County and is home to approximately 8,300 full-time residents as well as a very large number of seasonal employees and second-home owners who are transient throughout the year. There are limited growth opportunities in Park City and most development occurs by redevelopment or infill. However, being home to two acclaimed ski resorts, Park City draws a yearly average of 4 million visitors and almost one hundred percent of the accompanying traffic will travel through unincorporated Summit County. Winter has the highest visitation averaging 2,603,775 daily visitors and 1,402,296 in the summer. Until recently, the full-time population of residents and workers could expect a peak, seasonal influx of cars on the S.R. 224 and S.R. 248 or during special events such as the Sundance Film Festival. But there is now an expectation of heavy traffic and crowding

most days of the year. A strong partnership exists between Park City and Summit County despite Park City being responsible for its own transportation budgeting and projects.

The Snyderville Basin Planning Commission oversees planning activities at the Kimball Junction interchange and nearby neighborhoods within the western area of the County. Park City is represented by the Park City Planning Commission.

DRAFT

ENVIRONMENTAL CONDITIONS

Summit County covers an area of approximately 1,880 square miles. Just under half of the total land area is dedicated to national forest and public lands. Two large mountain ranges, the backside of the Wasatch Mountains running north and south and forming the western edge of the county and the Uinta Mountains extending east and west through the central and eastern portions, are part of the County's natural boundaries. Summit County has one of the highest mean elevations in Utah. Interstate and local roads wind through canyons following the natural topography around mountain slopes and lakes, giving access to the area's alpine valleys. The elevation in Summit County ranges from its lowest point of 6,017 feet to its highest at 13,491 feet.

The high elevation lends to accompanying high snow levels in winter months. On average, Summit County receives 87 inches of snow each year compared to an average 43 inches for the state of Utah. January is the coldest month in the County as it is in the rest of the state but lows are typically lower than in the state with an average low of 13 degrees in Summit County compared to 17 degrees for all of Utah. Summer temperatures reach a high in July of near 85 degrees in the County compared to 90 for an average in the State.

An estimated seventy-nine lakes are found within the County, most accessible only in warmer months when mountain roads and trails are open.

Air Quality

Summit County's 2019 Resolution #2019-29 establishes goals to reduce the County's impact on the environment, specifically to aggressively lessen its emissions and energy use. The resolution references environmental findings documented in the 2015 Summit County Climate Action Plan, citing that "combustion of fossil fuels used in the transportation sector (air, rail, on-road and off-road vehicles) cause about 47% of all greenhouse gas emissions in the incorporated and unincorporated areas of Summit County."

Summit County is a destination for people traveling from across the globe who come to enjoy the pristine and bucolic outdoors. The County is dedicated to protecting the clean air, physical landscapes, native wildlife, and climate that draw people to the unique alpine area. Local County landscapes are some of Utah's greatest treasures. The protection of open space and care for natural plants and wildlife is supported by improvements to existing corridors, where possible, and minimizing stress on the environment with unwarranted construction of hard surfaces. The Summit County Council and the County's Sustainability Department have made specific targets to improve air quality such as reducing greenhouse gas emissions by 2040 to 80% below 2016 levels. This is directly related to the future transportation infrastructure and projects will align with that target. Transportation investments will also support a second sustainability goal

to make County operations 100% dependent on renewable energy by incorporating infrastructure and vehicles that will rely on renewable energy sources.

DEMOGRAPHICS

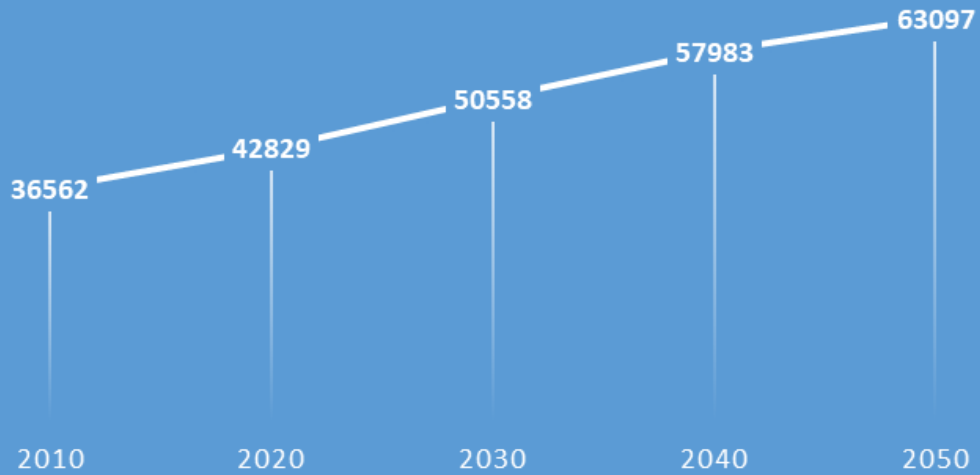
The population, household, and employment data used in the County's transportation model ultimately determined the projects included in this LRTP. This information was collected from the University of Utah Kem C. Gardner Policy Institute.

Population and Population Projections

The County's population control number in the model is the total population minus the group quarters (which includes inmates and residents at retirement communities who are part of the overall population totals but are assumed not to drive). This total was input to the model by distributing it in populated places in the County. Localized projections were derived through a unique collaboration in late 2018 and early 2019 between Summit County staff and representatives from cities, towns, and places using the University of Utah's Kem C. Garner Institute population numbers as a baseline and adjusting based on local knowledge and plans. These representatives met to refine 2017 estimates and to create realistic and agreed upon projections that were aligned with local and general plan documents and development applications of each community.

The population of the county as a whole is expected to increase by at least thirty percent over the next three decades, making reliable, affordable, and sustainable transportation an important component of planning for the future. As mentioned, much of the residential growth is expected in the eastern areas of the County. Currently, the existing roadways are designed for rural, low-density populations.

SUMMIT COUNTY POPULATION PROJECTIONS 2010-2050



Source: Kem C. Gardner Institute

<https://gardner.utah.edu/wp-content/uploads/Projections-Brief-Final-Updated-Feb2019.pdf?x71849>

Table 1 Changes in Population by Place			% Change
	2010	2017	
Coalville City*	1,368	1,471	7.5%
Echo CDP*	56	60	7%
Francis Town*	1,077	1,342	24.6%
Henefer Town*	766	825	7.7%
Hoytsville CDP	607	651	7.2%
Kamas City	1,811	2,083	15%
Marion CDP	685	769	12%
Oakley City	1,470	1,513	3%
Park City	7,558	8,320	10%
Peoa CDP	253	278	10%
Samak CDP	287	325	13%
Silver Summit CDP	3,632	4,323	19%
Snyderville CDP	5,612	6,414	14%
Summit Park CDP	7,775	8,760	13%
Wanship CDP	400	420	5%
Woodland CDP	343	379	10%
Summit County	36,324	40,804	12%

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 *Data for 2018

Income and Earnings

Summit County is a world-renowned destination for winter sports, outdoor activities, and cultural events such as the Sundance Film Festival. As such, the tourism industry, which includes ski resorts, accommodations, retail, and food services is the largest employment sector. Summit County business, industry, and government positions employed over 30,000 people with average earnings of over \$54,000. However, the high cost of housing, goods, and services in Summit County significantly reduces the average earnings, reducing them by almost 29%. Table 2 shows some examples of 2019 average earnings with the adjusted earnings based on cost of living for industry sectors representing some of the highest employment in Summit County.

Household Income

Analysis done by Summit County's Economic Development Directory offers the best estimates of household characteristics for the County's cities, towns, and CDPs with select data available for all sixteen in most cases. Median income was derived using a formula that applied a rate of inflation to year 2020 data.

Table 2 2017 Median Household and Per Capital Income		
	2017 Median Household Income	2017 Per Capita Income
Coalville City*	\$64,664	\$25,724
Echo*	\$65,217	\$28,319
Francis*	\$66,650	\$26,270
Henefer*	\$56,900	\$20,925
Hoytsville	\$74,638	\$30,369
Kamas City	\$69,923	\$27,843
Marion	\$70,781	\$33,433
Oakley	\$69,251	\$30,299
Park City	\$94,518	\$51,122
Peoa	\$77,396	\$28,393
Samak	\$68,737	\$29,139
Silver Summit	\$124,236	\$50,186
Snyderville	\$103,851	\$55,455
Summit Park	\$131,660	\$58,463
Wanship	\$102,869	\$44,528
Woodland	\$63,840	\$25,279
Summit County	\$96,149	\$46,386

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2017 *Data for 2018

Table 3 Earnings by Job Sector

Table 3
Earnings by Job Sector

Sector Description	2019 Number Jobs	% Total 2019 Jobs (30,252)	2019 Avg Earning Per Job	COL Adjusted Total Earning
Accommodation and Food Services	6,227	21%	\$35,866	\$25,618
Arts, Entertainment, and Recreation	3,956	13%	\$43,714	\$31,225
Retail Trade	3,650	12%	\$37,630	\$26,878
Government	3,063	10%	\$59,981	\$42,844
Construction	2,094	7%	\$57,008	\$40,720
Professional, Scientific, and Technical Services	1,991	7%	\$89,298	\$63,784
Health Care and Social Assistance	1,627	5%	\$62,902	\$44,930

Source: File: (Industry Sectors (2 digit) Earnings Cost of Living)

Housing Costs

Areas of the County have shifted from abandoned mining districts to some of Utah's most expensive neighborhoods in just a few decades. According to the Utah Association of Realtors Local Market Update, Summit County's median home prices were the highest in the state, far surpassing any other county in the state. For example, the average median sales price in 2020 in Summit County was \$950,000 with the second highest of \$645,000 in neighboring Wasatch County. The median sales price for the state as a whole was \$355,000. Affordable housing that is available to lower-wage and low-wage workers is a challenge the County is addressing with its Moderate-Income Housing Plan.

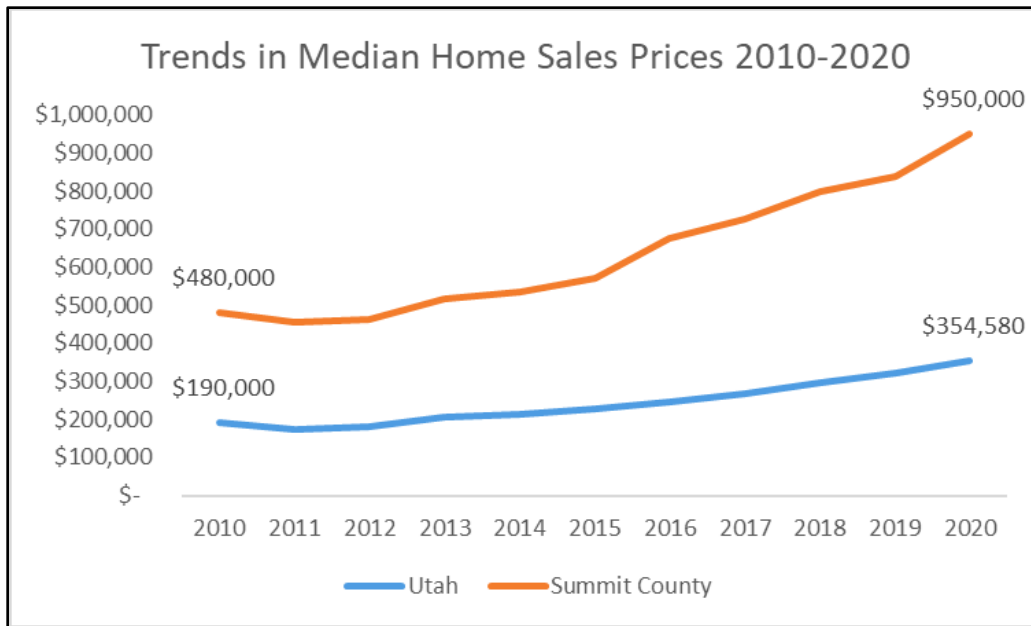


Figure 1 Trends in Median Home Sales Prices 2010-2020

There is a mix of single-family and multi-family housing. Several "affordable" and "attainable" housing developments exist in the county as high-density condominiums or townhomes. There are often waiting lists for these units. Rental properties are even rarer and the conversion of units to short-term rentals has further reduced rental inventory. For example, the 2010 Census shows that of all vacant housing in the County, only 9.2% was open for long-term rentals whereas 83.1% was used for seasonal or occasional use.

LAND USE

Table 3 shows the assessed land uses in the County. Agriculture and ranching continue to be major industries in the eastern areas of the county and these uses have maintained much of the open space. Almost 90% of all land within the County is assigned to a use that limits growth. Summit County and preservation groups are dedicated to keeping these areas rural. Just two percent of the total, assessed lots within all incorporated and unincorporated areas of the county remain available for development based on contemporary zoning. However, farmland is regularly reviewed for residential and commercial rezoning.

Table 4
Summit County Assessed Land Use

Land Use Type	Acres	Percent %
Farmland Assessment	523,971.2	39% of Total
Residential	84,896.8	6% of Total
Residential Developed	58,039.1	68% of Residential
Residential Undeveloped	26,857.7	32% of Residential
Exempt	53,608.3	4% of Total
Agricultural	37,297.3	3% of Total
Recreation	19,394.2	1.5% of Total
Commercial	9,535.5	.72% of Total
Commercial Developed	7,233.9	76% of Commercial
Commercial Undeveloped	2,301.6	24% of Commercial
National Forest	602,265.67	45% of Total
TOTAL ADDED ABOVE*	1,330,968.97	
TOTAL 1880 sq. mi	1,204,480	

Farmland Assessment – sometimes referred to as “greenbelt”, agricultural property taxed at a lower rate based on its productive capability rather than the market value of the land; *Residential* – Any dwelling intended to be lived in; *Exempt* – Any land owned by a local, state, or federal government authority including a school district and recreation district; *Agricultural* – Land used to grow foods or raise animals for profit; *Recreation* – Cabin properties requiring extended public services; *Commercial* – Any industry or business that is not agricultural

*Land use areas calculated from individual parcels on Summit County GIS layers. Total Summit County land area is recorded as a smaller number. This discrepancy comes from gaps, overlays, and the planes used to calculate the different parcels.

CURRENT TRANSPORTATION NETWORK

Much of the scale of roadways and paths has been intentionally preserved to maintain the county's scenic vistas and landscapes. Summit County leaders have been very thoughtful about the balance necessary as more people are drawn to the unique climate, scenery, and outdoor recreational opportunities. However, competing needs vie for priority, creating a complicated set of demands. For example, high-speed traffic on interstates and highways bifurcates residential areas from key commercial centers and schools. Beautiful and prized open space and agricultural lands surround roads that, during ski tourism season, must accommodate a swell of visitors. A very sparse network of collector roads prevents residents from avoiding surges of tourist and employee traffic. There is also a friction between preserving open space in support of the desired rural landscape and accommodating failing roadways. And an integrated system of county trails, precious to the local communities, winds through the entire network and must safely move recreation and commuter uses while also promoting the beauty of the area. This section includes a brief overview and description of the existing multimodal transportation system. Modes include highways, roads, active transportation facilities, and public transportation. There are no airports or inland ports located in the County. As stated, studies and projects underway at the time this plan was adopted focus heavily on transit and will likely change the balance of infrastructure inventory in the next version of the LRTP.

Roads

State Roads

Interstate 80 (I-80) is the primary east-west interstate in Utah, providing a vehicular connection from California to the Great Lakes. Hundreds of millions of miles are driven on Interstate 80 in Utah. It carries freight and commuter traffic across the state and is the main access to the Salt Lake International Airport. It is also Summit County's key corridor



for year-round access to and within the populous areas of Western and Eastern Summit County. Interstate 84 (I-84) runs through Summit County for about seven and a half miles and is an important connection for travel from communities north of Davis County into Summit County.

Two state highways, State Route 224 and U.S. Route 40, connect with I-80 in western Summit County and State Route 32 connects with I-80 in eastern Summit County. A handful of local roads at interchanges with I-80 provide access to neighborhoods and small communities. The Utah Department of Transportation (UDOT) maintains all state roads as well as oversees their uses and activities.

North/South State Roads

Interstate 84 (I-84)

Interstate 84 enters Summit County just north of Henefer and terminates in Echo as it intersects with Interstate 80. Originating in Portland, Oregon, the interstate has a key function in moving commercial, recreational, and employee transportation.

State Route 224 (S.R. 224)

State Route 224 (S.R. 224) is an at-grade highway and the only direct connection from I-80 to Park City. It is the spine for most travel in the area, carrying a majority of all travelers (residents, visitors, students, workers, freight, transit) to key commercial areas and residential neighborhoods, as well as to all three major ski resorts, for at least some part of their trip. A number of signalized and unsignalized accesses from S.R. 224 provide connections to the local street network. There are also well-developed, heavily used bicycle and pedestrian facilities outside of the UDOT right of way, parallel to the S.R.224 corridor. Despite large areas of open space, there are no major farming activities along this corridor. Speeds vary between 25 miles per hour and 45 miles per hour. Annual average daily traffic (AADT) in 2020 on S.R. 224 was a staggering one hundred and three thousand (103,000) daily vehicular trips, considering the County's entire population is about forty-five thousand.

U.S. Route 40 (U.S. 40)

U.S. Route 40 (U.S. 40) intersects with I-80 at Silver Creek Junction in Silver Summit, traveling through Summit County as a traditional freeway with only two exits in Summit County: Silver Summit Parkway and S.R. 248. Unlike S.R. 224, there are no local entry points to U.S. 40 and it is used primarily for travel to access other primary transportation corridors such as I-80 and S.R. 248. The exit at Silver Summit Parkway funnels vehicles to residential and commercial zones on either side of the highway. The Silver Summit area also encompasses a large percentage of the County's undeveloped but entitled land and there are currently several development proposals under review. U.S. 40, south of Silver Summit, intersects with S.R. 248. Travelers looking to access the Park City Hospital and several other medical facilities have a quick connection from this interchange. U.S. 40 also offers the most direct and fast connection for those traveling between neighboring Wasatch County's popular Kamas and Midway cities to the south. Speeds on U.S. 40 are currently between 55 and 65 mph.

State Road 32 (S.R. 32)

S.R. 32 is a two-lane highway, one lane in each direction, that acts as a local collector connecting the more rural communities of eastern Summit County and several summer recreation areas. Between 2015-2019, forty-four percent of all traffic along the sixteen-mile distance of S.R. 32 between I-80 and S.R. 248 occurred on a half-mile section from S.R. 248 and Kamas City. Speeds are low, between 25 and 35 miles per hour.

State Road 65 (S.R. 65)

State Route 65 is also called East Canyon Road. It intersects with Interstate 84 in Henefer and runs just over 28 miles to Interstate 80. S.R. 65 provides important access to highly visited recreation areas during summer months. It is not accessible during the winter.

East/West State Roads

Interstate-80 (I-80)

As noted above, I-80 carries most traffic into Summit County, especially those coming from Salt Lake City or northern parts of the state. Although it is a high-speed, primary corridor for freight and interstate traffic, I-80 also serves to carry local traffic as it bisects several established neighborhoods and connects shopping, grocery, school, and work trips within the County. The Kimball Junction interchange at I-80 and S.R. 224 is a nexus between many of these destinations and is also the entry corridor to the ski resorts and lodges. Kimball Junction experiences some of the greatest traffic in the region and operational improvements at the interchange are under review at the time of the adoption of this LRTP.

S.R. 248

State Route 248, also named Kearns Boulevard for the section from U.S. 40 to Park City, is critical in the region for traffic going to Park City. Its fourteen-mile span ties together eastern and western Summit County, connecting S.R. 32 and S.R. 224. Although Summit County and Park City collaborate on transportation issues, issues related to the Kearns Boulevard segment of S.R. 248 are the priority of Park City. Summit County coordinates with UDOT on the eleven miles west of U.S. 40 that connects with S.R. 32 in Kamas. Here, the corridor is generally three lanes wide, alternating between one and two lanes for each direction. Speeds are highest, reaching 65 miles per hour, for most of this section where intersecting roads and destination locations are minimal but slow to 35 and 25 miles per hour near Kamas. Most of the eastern segment of the corridor passes through agricultural property but traffic is heavy during peak commute times and during the summer recreation season. To the west, a number of residential projects have been developed and many more are anticipated along with commercial projects.

Mirror Lake Highway

Mirror Lake Highway is a two-lane mountain road existing inside the Uinta-Wasatch-Cache National Forest, spanning 42 miles from Kamas to the Wyoming border. It is used by day drivers, campers, summer recreationists, and those who have homes in the area. Much of the road is closed during winter months and is reopened in mid-May of each year.

State Route 35 (S.R. 35)

State Road 35 (S.R. 35)

State Route 35 is also a two-lane road that runs for approximately ten miles through Summit County, beginning in Francis at the intersection with S.R. 32, running southeast along the edge of national forest land until terminating in Duchesne in Duchesne County. It is an important road for people in Woodland, being the only state-maintained road serving the area.

Major County Roads

Summit County maintains roads throughout unincorporated county neighborhoods that are not



within areas managed by HOAs. The county is directly responsible for snow removal, asphalt replacement, and drainage and flood control activities. The roadway network in Summit County flows seamlessly between state and county roads and requires close collaboration between the planning and transportation departments of each agency.

Kilby Road

Kilby Road is a two-lane road, connecting the Kimball Junction and Summit Park neighborhoods. Segments of its 4.2 miles include dedicated bicycle lanes and center turn lanes. The roadway is an important transportation corridor, used to connect to school, shopping, and recreation as well as the primary access for residents to a number of local neighborhoods.



Landmark

Landmark joins Kilby at the Outlet malls where it runs as a commercial collector, distributing locals, workers, and visitors over a 0.7 mile stretch. Despite its short distance, Landmark is one of the most heavily traveled corridors and is a critical access to a number of key area businesses. It is a two-lane road with a center turning lane for most of its length.

Rasmussen Road

Rasmussen Road runs parallel to I-80 on its north side for about two and a half miles (2.5 miles) between the Jeremy Ranch interchange at I-80 and the Kimball Junction interchange at I-80. Most uses are commercial or industrial, being accessible only by Rasmussen Rd.

Browns Canyon Road

Browns Canyon connects roads in Eastern Summit with UDOT's S.R. 248 near the U.S. 40 interchange. The adjacent land uses are zoned Agricultural Grazing and it is not currently heavily populated.

Chalk Creek Road

Chalk Creek Rd is a stretch of roadway running through agricultural lands for the 23-mile distance between Coalville and the Wyoming border. It is a two lanes rural road without shoulder or bike lanes. There are very few residential or commercial uses nearby, but it is used for commercial transportation and recreational access.

Weber Canyon Road

Weber Canyon Road is a 40-mile long paved mountain road that is open during summer months for recreation, camping, and to reach summer homes. It is one lane in each direction with no bicycle lanes, although it is a popular route for cyclists.



DRAFT

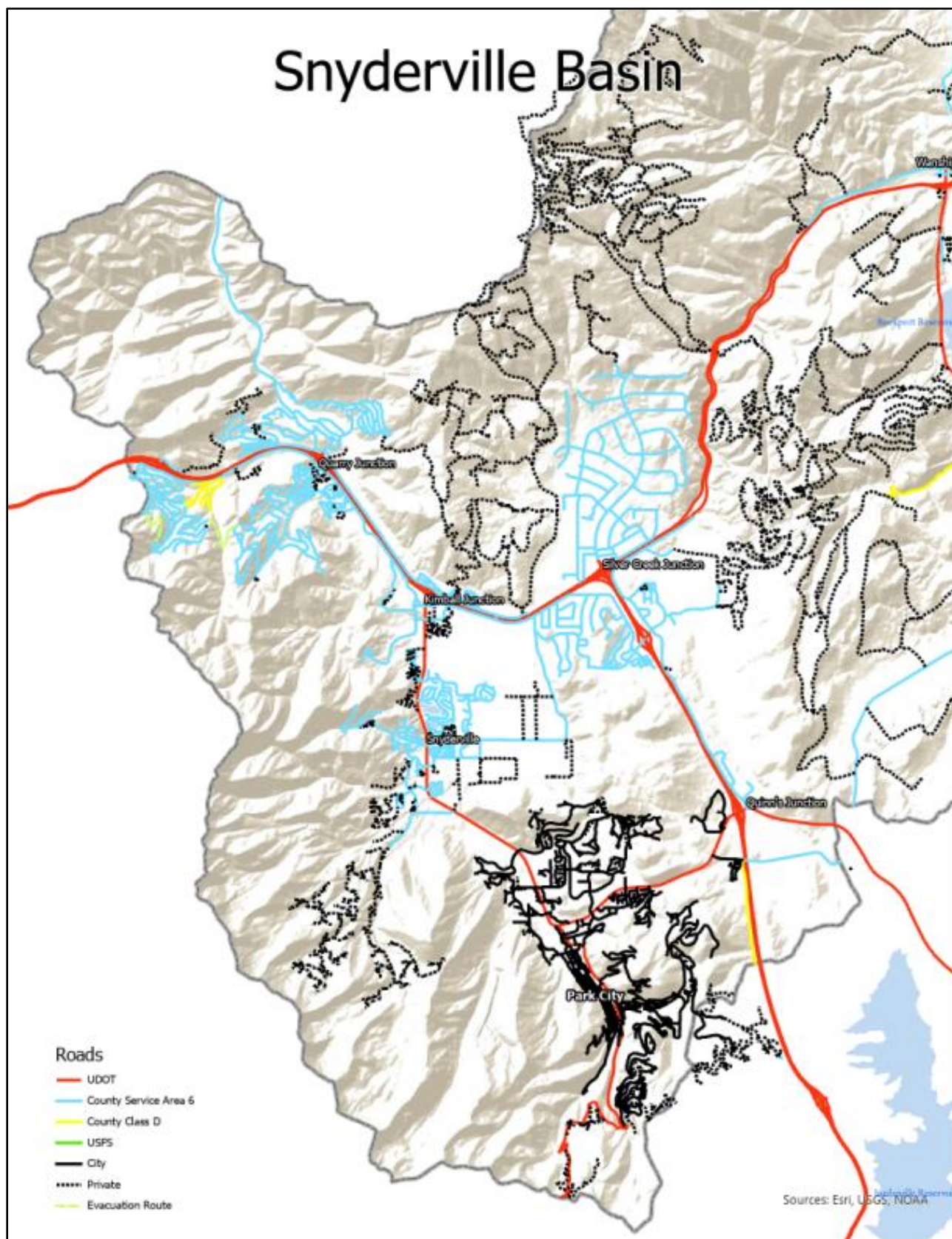


Figure 2 Snyderville Basin Roadway Jurisdiction Map

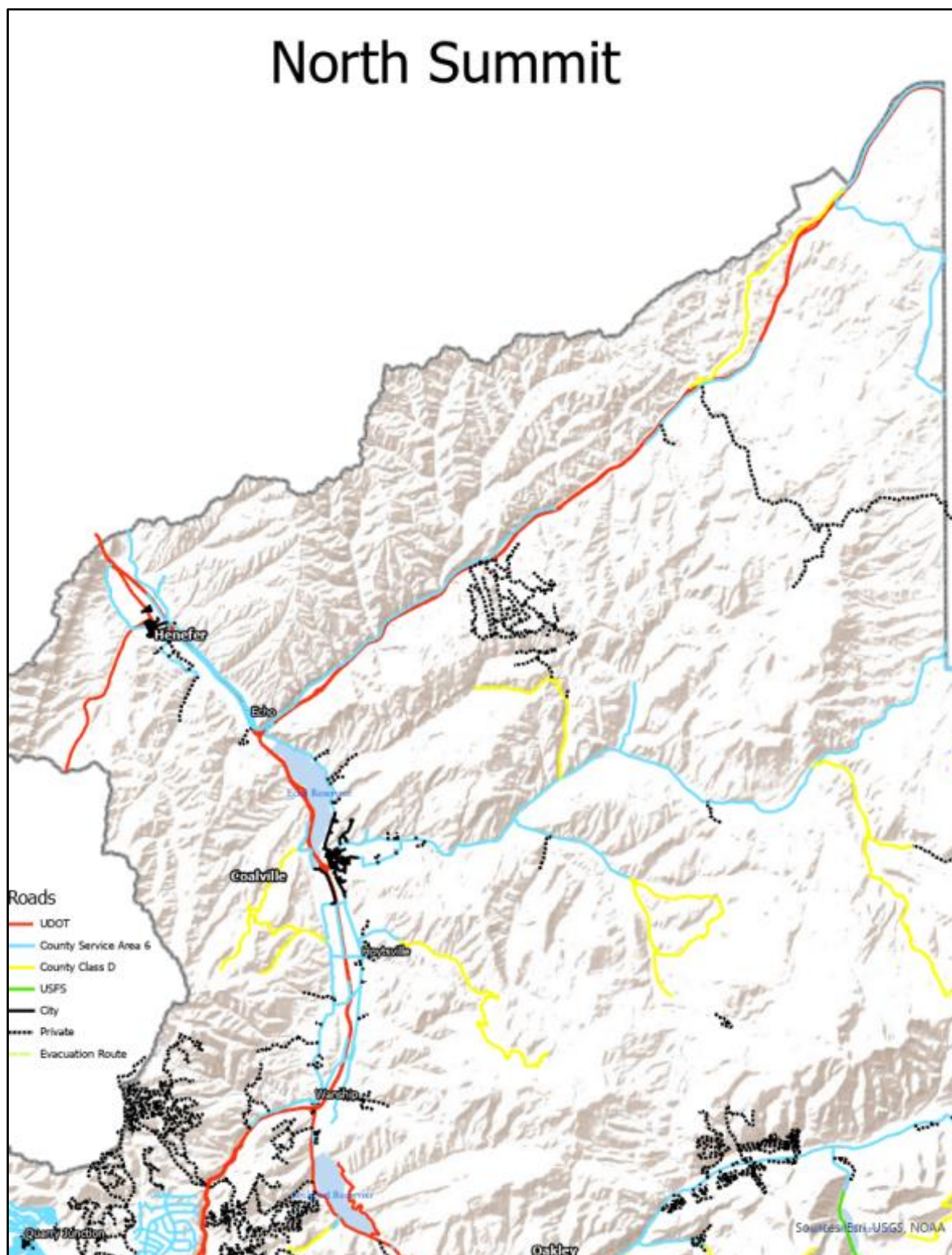


Figure 3 North Summit Roadway Jurisdiction Map

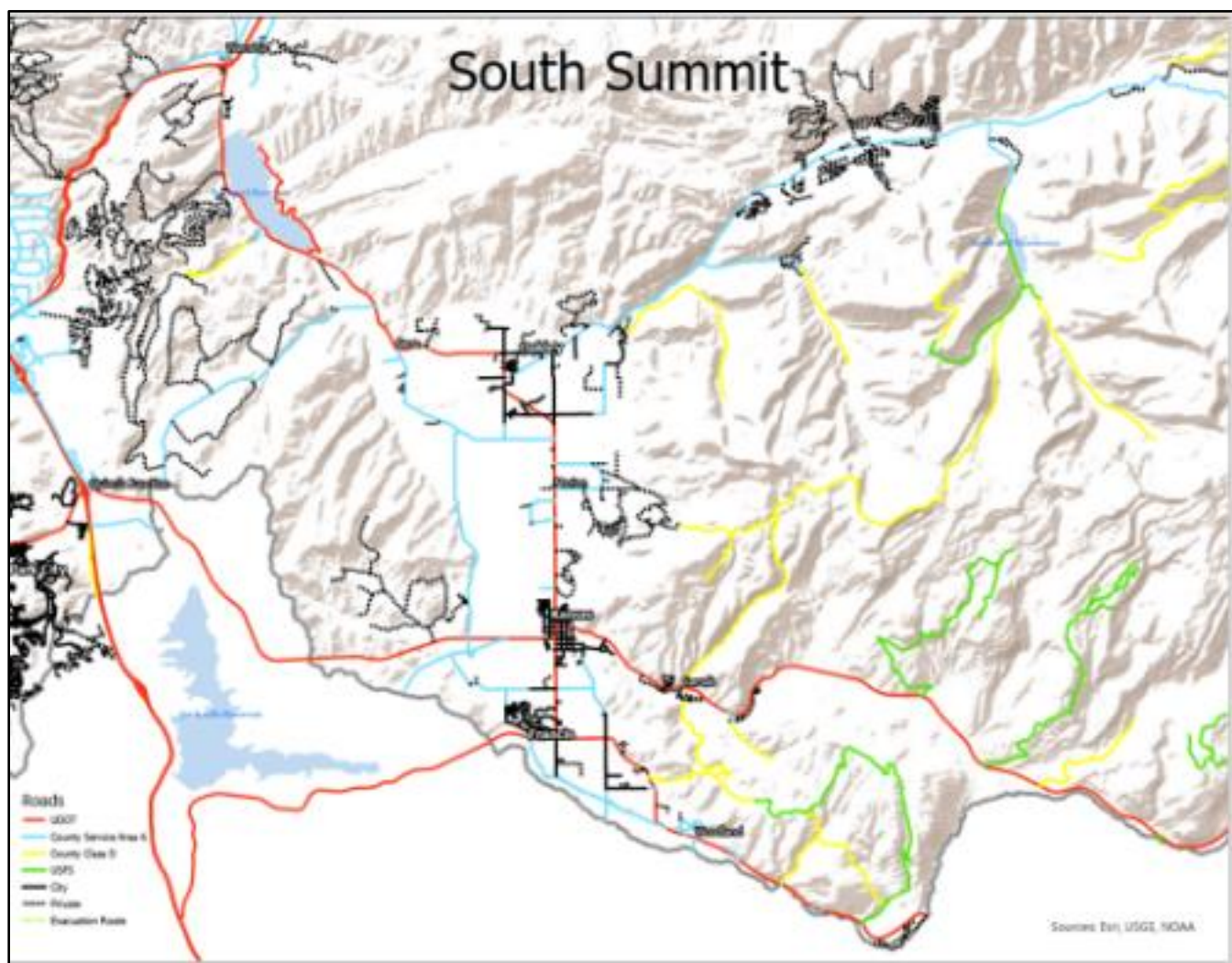


Figure 4 South Summit Roadway Jurisdiction Map

Trails



In 1995, Summit County established the Snyderville Basin Special Recreation District which oversees 170 miles of trails. Basin Recreation owns and manages over 2,000 acres of open space and is active in overseeing the access and condition of a number of trails, trailheads, and open spaces in Summit County. An ongoing effort to improve wayfinding through categorization and color-coding of trails throughout the system began in 2019 and continues. Investments in new signage that blend with the outdoor environment have been welcomed by communities and users.



Summit Bike Share

Summit County and Park City launched Summit Bike Share in 2017. It is the first system in the country to have 100% of its fleet completely available as electric-assist. Bikes can be rented in spring and summer months from fixed stations 24 hours a day, seven days a week by residents and visitors as a pay-per-ride service or with different levels of membership. In 2019 eleven new stations were opened to respond to the increasing demand for the popular service to bring the total number to twenty. By the end of the 2019 season, 13,340 rides over 48,510 miles were taken on the Summit Bike Share System.

Transit

There are two public transit agencies operating within Summit County - Park City Transit (PCT) and High Valley Transit (HVT). Each provides year-round, fare-free transit service to all residents and visitors.

Park City Transit implements seasonal routing and scheduling for areas within Park City's municipal boundaries adjusting for winter and shoulder season demand. Service consists of fixed routes, one on-demand route, and ADA Paratransit. Route frequencies vary but are scheduled at either fifteen or thirty-minute headways. It also cooperatively operates a high-frequency bus rapid transit (BRT) line with High Valley Transit that runs between major transit hubs. Most lines operate between the hours of 6 am and 12 am.

High Valley Transit is the public transportation provider for the unincorporated areas of Western Summit



service is also fare free to people traveling within predetermined "zones" where fixed route service is not available. Valley Ride is HVT's ADA Paratransit service.

High Valley Transit and the Utah Transit Authority (UTA) also cooperatively fund and operate a commuter bus route between Salt Lake City and Kimball Junction. There is a fare for this service which is determined and approved by the UTA Board of Trustees. This service has become a reliable means of transportation for commuters between the Wasatch front and the Wasatch back.

County. There are two exceptions with one of its routes extending to Kamas and Francis in Eastern Summit and one all-day route that offers connections to Park City's resort and historic areas. Its service is consistent 365 days of the year with fixed route bus lines operating at regular frequencies of fifteen, twenty, or thirty minutes. In 2021 HVT introduced a large scale microtransit service to Summit County. Called Micro, this



Electric Vehicle Charging Infrastructure

The steady build out of electric vehicle (EV) charging infrastructure and charging stations throughout the County is in alignment with greenhouse gas emissions reduction goals. Fifteen stations offering twenty-seven charging ports are currently available throughout the County and are free for public use. Another seventeen stations that include thirty-nine ports have been identified and will likely be installed in 2022. EV stations are either located or slated for installation at all transit hubs and most public buildings, offering expanded travel options, and could play a role in future efforts to implement transportation demand management options and incentive programs.

TRAFFIC

Although Summit County is considered a “resort town”, it is a year-round destination for crowds and events that draw locals and travelers alike. The proximity to an international airport and major freeways makes it attractive for skiing, hiking, camping, cycling, festivals, and multiple other indoor and outdoor activities during all four seasons. Congestion is most noticeable during the peak times of the day typically associated with commuters. The high cost of living in almost every part of the county means employers must draw employees from Utah, Weber, Summit, Wasatch, and Salt Lake counties as well as the neighboring state of Wyoming. Most visitors arrive with personal vehicles or fare rides.



The charts below showing traffic data made available by the Utah Department of Transportation. Average Annual Daily Traffic (AADT) is derived from counting traffic passing a point on a roadway. It offers a close approximation of how many cars are traveling on that roadway on a typical day. Vehicle Miles Traveled (VMT) is an annual estimation of all traffic based on AADT. Here, historical AADT is shown on major segments for context whereas VMT is projected future years and is for the entire County.

Table 5 AADT – Historical Average Annual Daily Traffic Counts 2015-2019

Table 5
AADT – Historical Average Annual Daily Traffic Counts 2015-2019

	2015	2016	2017	2018	2019
S.R. 224 (north of S.R. 248)	100,000	103,000	103,000	103,000	103,000
S.R. 248 (west of Hwy 40)	60,000	60,000	64,000	64,000	64,000
S.R. 248 (east of Hwy 40)	32,000	32,600	34,600	35,200	34,900
Hwy 40 (north of S.R. 248)	61,000	65,000	67,000	69,000	71,000
S.R. 32	37,300	39,000	40,000	41,500	42,100
Mirror Lake Hwy	8,170	8,620	8,840	9,320	8,900

Source: UDOT AADT History <https://www.udot.utah.gov/connect/business/traffic-data/traffic-statistics/>

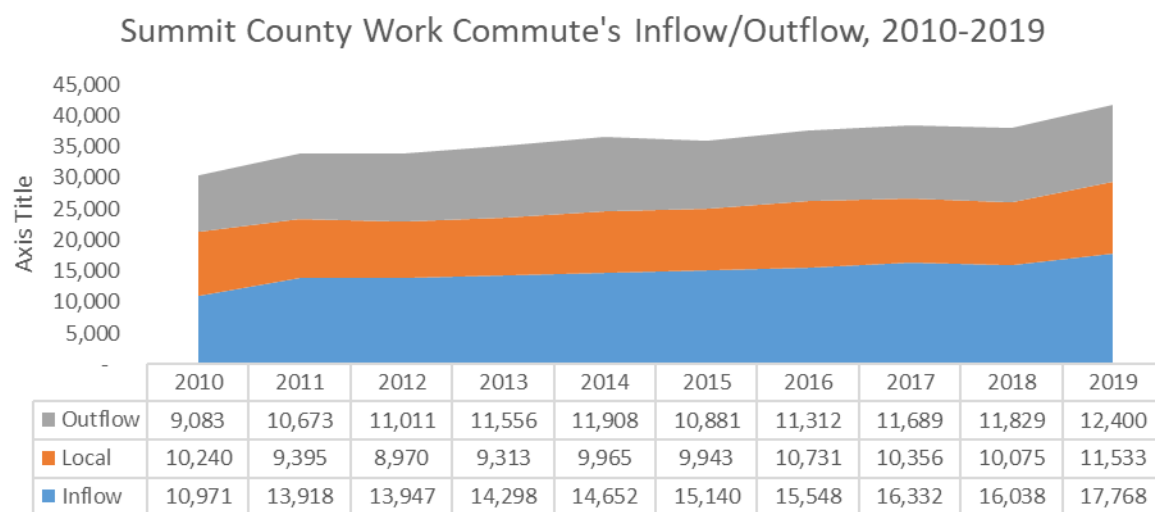
Table 6 Summit County VMT – Projected Average Vehicle Miles Traveled

Table 6
Summit County VMT –Projected Average Vehicle Miles Traveled

	2019	2030	2040	2050
VMT	2,517,119	2,910,416	3,381,623	3,808,660
Person Trips	125,838	136,121	156,541	169,926
Commuter Vehicle Trips	6,346	9,111	12,049	14,694
Commuter Person Trips	6,917	9,931	13,133	16,017

Source: Utah VMT History Dashboard <https://www.udot.utah.gov/connect/business/traffic-data/traffic-statistics/>

Commuting



Source: U.S. Census Bureau, OnTheMap Application, <http://onthemap.ces.census.gov>

Figure 5 Summit County Work Commute's Inflow/Outflow, 2010-2019

Summit County's attractiveness as a recreational and resort destination has brought with it the necessary support industries and workforce. Figure 2 above is helpful to understand the total daily traffic that can be attributed to commuting. The table also provides a quick view of the increasing need for employers to hire from outside of the County, increasing from fifty percent to sixty percent in just the last ten years. The trend of increases in both is likely to continue.

Noted previously, almost all traffic to the city of Park City must travel through unincorporated Summit County. The 2019 Inflow/Outflow chart specific to Park City, as seen in Figure X, shows that Park City draws more daily work traffic than any other location by far, with 12,755 of the total 17,768 daily commuters finishing their journeys in Park City. Figure x provides a comparison of the same period for work travel into and out of the Snyderville Basin area.

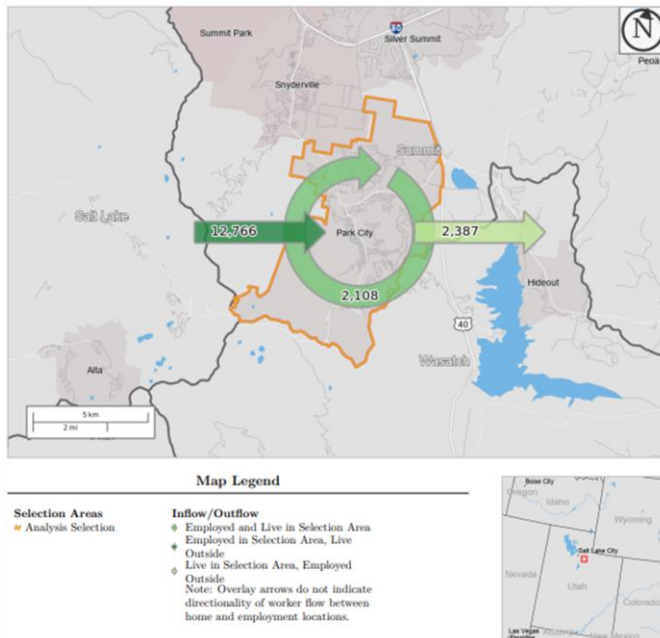


Figure 6 Inflow/Outflow Counts of All Jobs, All Workers for Park City

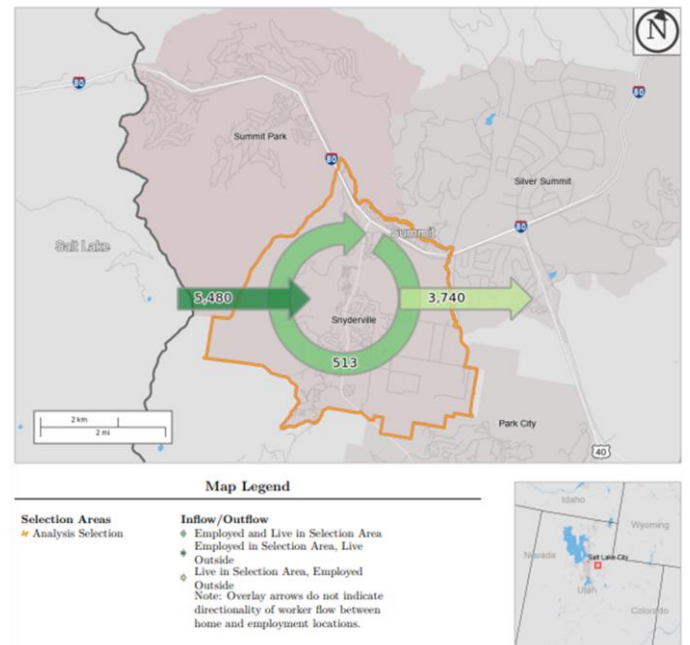


Figure 8 Inflow/Outflow Counts of All Jobs, All Workers for Snyderville

Source: U.S. Census Bureau, OnTheMap Application, <http://onthemap.ces.census.gov>

LONG RANGE TRANSPORTATION PLANNING

Level of Service

One of the ways transportation planners and engineers assess the functionality of a transportation system is by looking at the level of service (LOS). The LOS is a quantitative measure of traffic operational conditions and is given a letter from A-F based on the amount of traffic demand compared to the capacity of a roadway or intersection. The Highway Capacity Manual and Transportation Research Board has well defined the LOS for signalized and unsignalized intersections.

Table 7 Level of Service Description			
Table 7 Level of Service Description			
LOS	Description	Average Delay (seconds/vehicle)	
		Signalized	Un-signalized
A	Free flow	0 ≤ 10	0 ≤ 10
B	Stable flow with slight delays	> 10 - 20	> 10 - 15
C	Stable flow with acceptable delays	>20 - 35	>15 - 25
D	Approaching unstable flow with tolerable delays	> 35 - 55	>25 - 35
E	Unstable flow with intolerable delay	> 55 - 80	>35 - 50
F	Forced flow with congestion and excessive delays	> 80	> 50
Source: Highway Capacity Manual 2010 (Transportation Research Board, 2010)			

The LOS standards in the County are that “the operational character that shall be maintained for roadways and intersections in the Snyderville Basin shall be a level of service C for county roads and intersections and a level of service D for state roads.” However, when looking at capacity and LOS there should be exceptions that are allowed due to tradeoffs associated with economic, social, or environmental impacts. There should be consideration for other modes of transportation as well. Roadway pavement widths that are maximized for single occupancy vehicles may result in eliminating bike or transit lanes. Pedestrians should also be considered when doing improvements. The LOS for intersections does not consider the delay for pedestrians crossing the street but only accounts for vehicle delay. When assessing roadway capacity there are several factors that like access density, terrain, seasonal variation, and passing opportunities.

Roadway Functional Classification

When planning a transportation system there is a hierarchy of roads that determine vehicle travel mobility and vehicle access to property. This hierarchy is known as the functional classification. While all roadways offer some type of mobility and access, it is the roadway's main function that define which classification the roadway belongs to. Roadways with the most mobility and the least amount of access are considered "freeways" and roadways with the least amount of mobility and the most access are considered "local". The figure on the side was taken from a standard FHWA publication and shows a general example of the roadway's functional classification and the proportion of mobility and land access relation.



There are other categories to describe the functional classifications of roadways like urban, rural, major, and minor. However, this plan only uses the four classifications of Freeways, Arterial Streets, Collector Streets, and Local Streets. Figures 8-10 show the different classifications of roadways within the County. These classifications were determined using UDOT's Functional Class Map and the definitions below.

Freeways

Freeways are roadways built to connect different regions together and are generally under the jurisdiction of the state or FHWA. They typically carry large volumes of vehicles long distances at higher speeds. Access is limited usually with on and off ramps and directional travel lanes are usually separated by some type of physical barrier. They have a typical right-of-way of more than 100 feet. Freeways have speed of 55 mph or higher and within Summit County the freeways include I-80, I-84, and US-40.

Arterials

Arterial roadways provide access from the freeway system to smaller geographical areas and still provide a high level of vehicle mobility and limited access. They carry local transit routes and connect to collector roads and carry volumes from 6,500-27,000 vehicles per day (one exception in the is SR-224 which carries more than 27,000 vehicles per day and is considered a principal arterial). They are typically spaced one mile apart and have speeds of 40-60 mph. They typically have a right-of-way width of 60-120 feet. All major arterials in Summit County are maintained by UDOT and are State Routes 32, 224, and 248. The minor arterial that Summit County maintains is Browns Canyon Road.

Collectors

Collector roadways gather traffic from local roadways and link them to arterials. They provide some land access with higher volumes of traffic and sometimes carry local transit routes. They can typically carry volumes from 1,100-6,500 vehicles per day and typically have speeds between 30-45 mph. Collectors that have many driveway accesses and run through neighborhoods generally have speed limits of 25-35 mph. They typically have a right-of-way width of around 50-80 feet. UDOT maintained roadways within Summit County that are considered collectors are Mirror Lake Highway, SR-65, and SR-35. Some examples of county-maintained collectors are Chalk Creek Road, Weber Canyon Road, Rasmussen Road, Highland Drive, Silver Creek Drive, Kilby Road, Landmark Drive, Ute Boulevard and Parkview Drive.

Local

Locally classified roadways provide direct access to residential properties and are not intended for long distance travel. They usually connect to collector roads and are designed to discourage through traffic. They have the lowest vehicle mobility and highest access and local transit routes generally do not use them. Local roadways are often classified by default after the collector and arterial roadways have been identified. All private roadways were classified as local as a default. The speed limit is 25 mph and have a right-of-way up to 60 feet. Local roadways are the only roadway facilities that are considered for traffic calming measures.

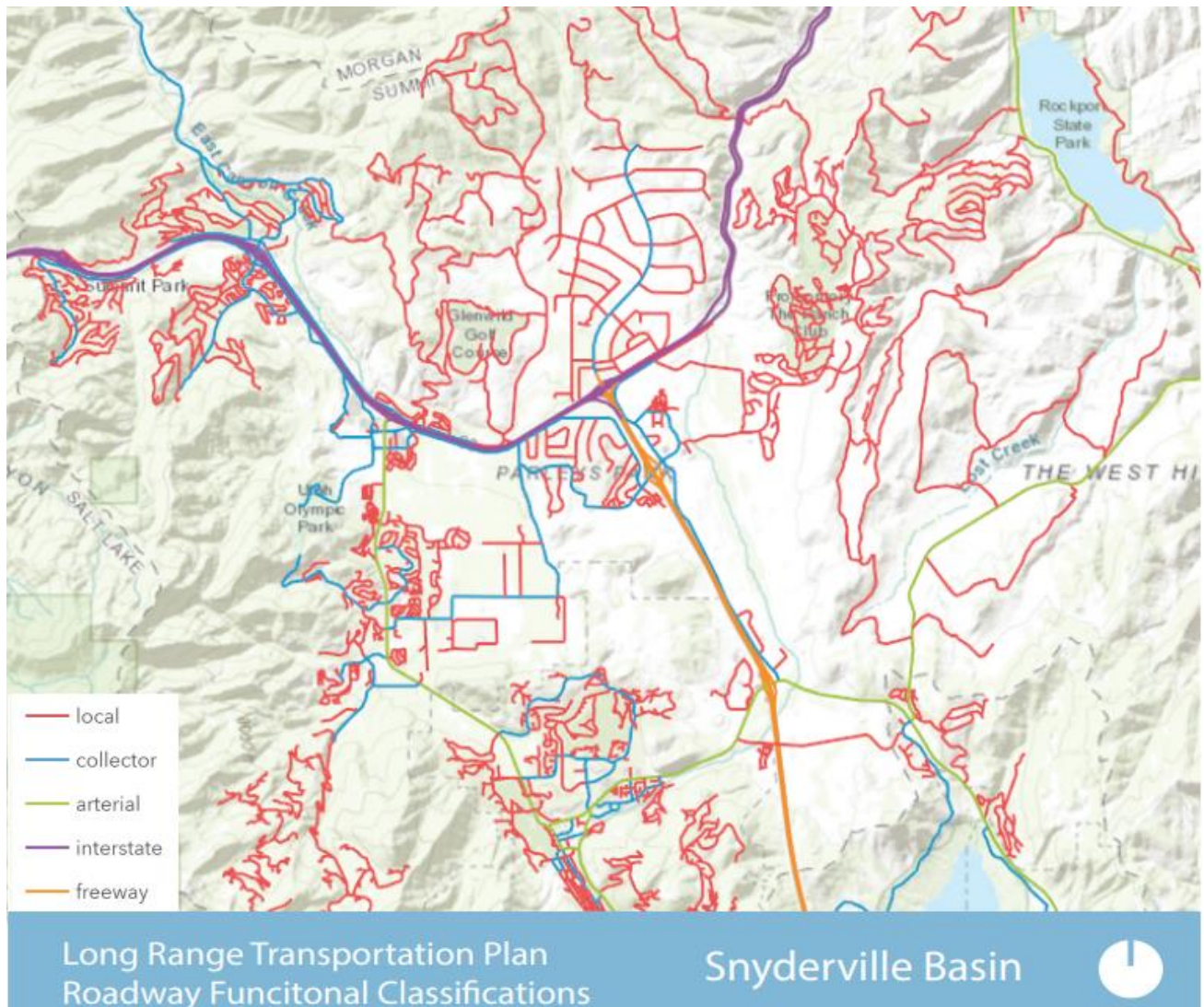


Figure 7 Roadway Functional Classification Snyderville Basin

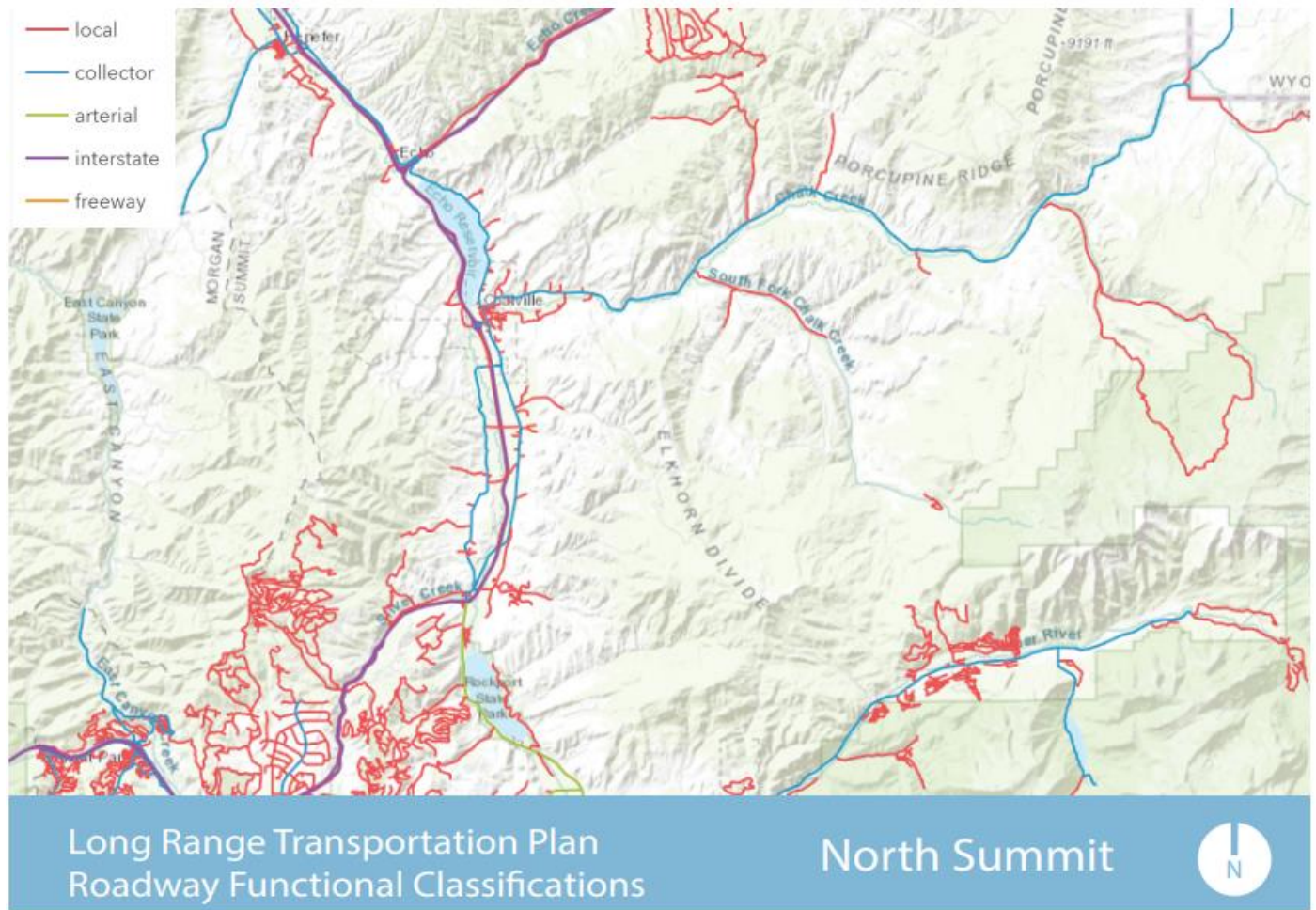


Figure 8 Roadway Functional Classification North Summit

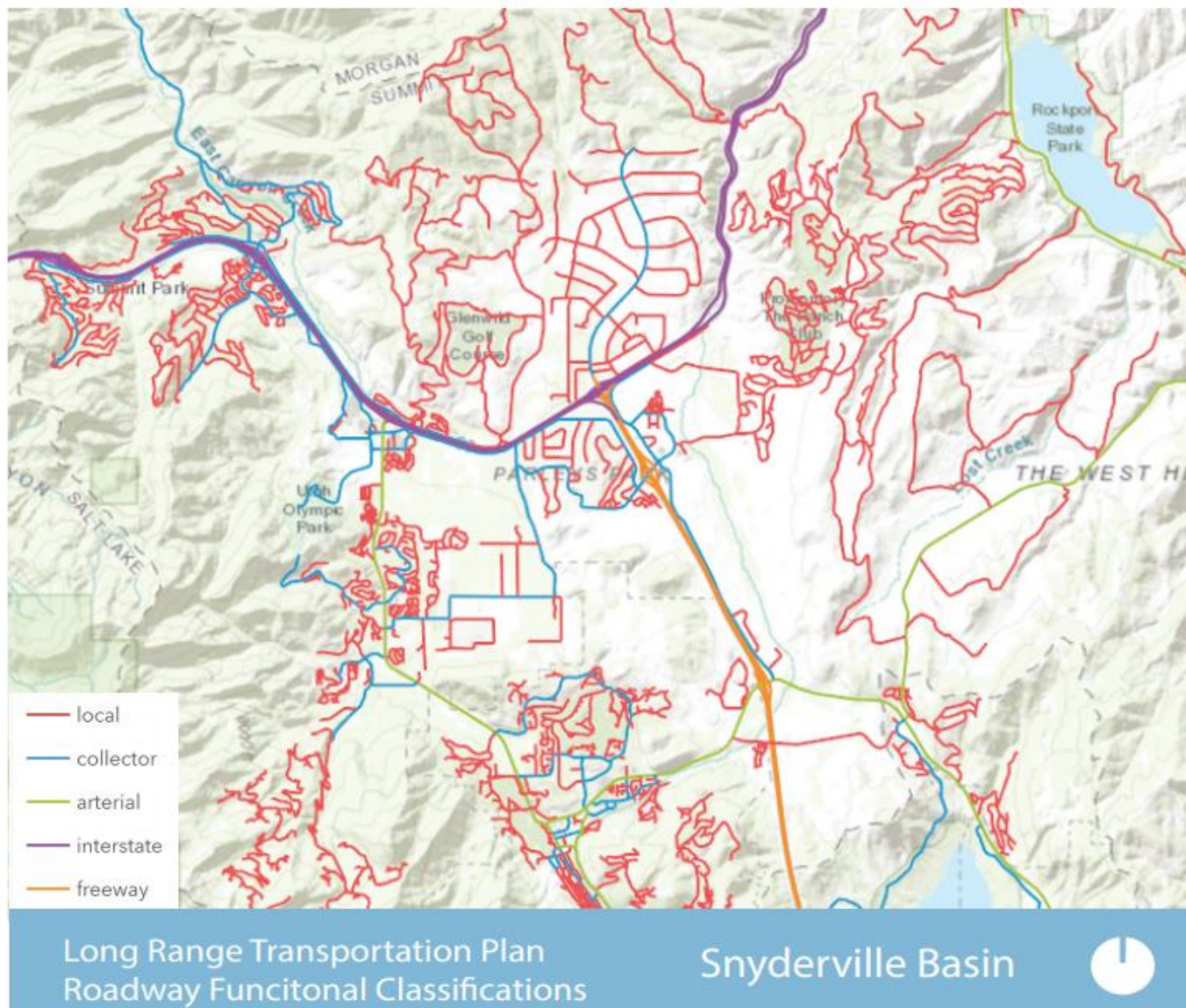


Figure 9 Roadway Functional Classification South Summit

No Build Evaluation

As with most transportation planning studies, this Long-Range Transportation Plan relies on demographic and economic forecasts to model travel patterns. The modeling allows users to see where growth will occur in relation to defined land uses and predicts how people in households will travel for daily activities. The first phase of modeling is to observe the future traffic and road conditions if nothing is built or expanded to accommodate new growth. This scenario is called a “No Build” scenario and serves to support smart decision making when looking at solutions.

The costs of transportation projects can be significant and construction and maintenance can demand a large portion of a community’s budget and tax revenues. Construction of projects can also be extremely disruptive. Prior to committing resources, it is helpful to weigh the costs and benefits of the proposed solutions against the outcomes of simply leaving the system as it is and doing nothing.

In a No Build evaluation, traffic modeling predicts the experience of travelers in the transportation network if zero dollars are invested in additions or improvements to roads, paths, or public transit and if there are no changes in travel behavior. This section provides that assessment for Summit County and summarizes the congestion and travel time on county corridors over the planning horizon. For this LRTP, an iterative analysis was done to view impacts in the years 2030, 2040, and 2050 with corresponding expectations for growth in population, employment, and tourism.

As stated, the No Build evaluation considers demographic and land use inputs with no capacity improvements. However, there were exceptions for projects approved and budgeted at the time of modeling. These were the only projects included in the model to evaluate the No Build scenarios. There are three applicable projects. They are:

- o Bus Rapid Transit on Hwy 224 in dedicated lanes (The model scenario includes a high-level concept of BRT. A current study is reviewing more precise alignments and stations.)
- o 2018 – UDOT expanding I-80 eastbound from 3 to 4 lanes from Summit Park exit to Jeremy Ranch exit
- o 2020 Summit County - Expanding Canyons Resort Drive from 3 to 5 lanes from SR-224 to the Roundabout

Some areas in the county quickly experience failing LOS. UDOT’s standards for a two-lane rural collector (taken from UDOT 2015-2040 LRTP), was used as a quick, high-level screening to show when roadways would be approaching the LOS C/D and D/E thresholds. Further analysis was done after roadways were identified in the model.

Using the travel demand model to understand LOS was only one of the tools to approach transportation planning. Previous long range transportation plans were looked at and other UDOT studies and those submitted by developers were also incorporated to plan for improvements to intersections and roadways being built for better transportation network.

A review of the impacts to health and quality of life shows the No Build scenario not to be viable with negative outcomes anticipated to safety, emissions, health, travel time, economic opportunity, and community character should no investment be made to the transportation network.

Final Projects

This section presents the final list of projects for this Long-Range Transportation Plan. These are being advanced following coordination with representatives from local planning and engineering staff. All of the roadway projects on the following tables address capacity, safety, and connectivity issues. County leadership will be able to reference the LRTP for opportunities to synchronize with other agencies and lessen duplication of construction activities.

Expanded and new roadways are vital to providing safety and access to many types of users, especially in burgeoning communities such as Summit County. However, healthy communities also depend on alternative transportation such as public transit, biking, and walking corridors as well as land-use preservation measures and emissions controls. Although transit infrastructure and priorities will not be a focus in this LRTP as transit plans are under review in separate efforts, the adopted Summit County Active Transportation Plan projects are included here as a guide for coordinating trails and pathways projects that are seen as critical for health and access.

Phase I (0-10 years) to meet demand by 2030

Table 8

Long Range Transportation Plan: Roadway Projects 2020-2030

Map	Project Name	From	To	Improvement	Location	Estimated Cost
1	Landmark Dr widening	6560 N Landmark (Best Western)	6700 N Landmark (Outlets)	Widen to four lanes for approximately 0.3 miles	Unincorporated Summit County/ Snyderville	\$1,742,000
2	Bitner to Silver Creek new road	Bitner Ranch Rd	Silver Creek Rd	Construct a new two-lane road for approximately 0.70 miles	Unincorporated Summit County/ Silver Summit	\$ 16,623,000
3	Pace Frontage Road widening	Silver Creek Dr & Old Hwy 40 roundabout	6447 N Pace Frontage Rd	Widen to four lanes for approximately 0.3 miles	Unincorporated Summit County/ Silver Creek	\$ 3,755,000
4	Silver Creek Drive widening	Pace Frontage Rd	Promontory Ranch Rd	Widen to four lanes for approximately 0.3 miles	Unincorporated Summit County/ Silver Creek	\$ 3,311,000
5	Hallam Road extension	S.R. 248	Lambert Ln	Construct new two-lane road for approximately 1.0 mile	Unincorporated Summit County	\$ 4,781,000
6	Upgrade Silver Creek Dr / Pace Frontage Rd roundabout to dual-lane roundabout	Hwy 40 Silver Summit Pkwy intersection (west)	Hwy 40 Silver Summit Pkwy intersection (east)	Reconfigure the entrance/exit ramps from Hwy 40 at Silver Summit Pkwy for both northbound and southbound travelers as well as redesign the current roundabout at Silver Creek Drive/Pace Frontage Road/Old Hwy 40	Unincorporated Summit County/ Silver Creek	\$ 6,469,000
7	Weber Canyon Rd widening	Oakley	Smith and Morehouse	Widen to three lanes by adding turn lanes	Oakley/ Unincorporated Summit County	\$ 10,523,000
8	Democrat Alley alignment and paving	Woodenshoe Ln	Hwy 248	Realign and pave the approximate	Unincorporated Summit County	\$ 4,775,000

				1.5-mile section of unimproved existing roadway		
9	Lower River Rd/South Willow Way intersection improvements	Lower River Rd	South Willow Way	Improve function and safety at the “v” intersection	Unincorporated Summit County	\$1,773,000
10	Extend Landmark Dr	Olympic Pkwy	Bear Club Lane	Extend Landmark Dr as a two-lane road for approximately .25 miles	Unincorporated Summit County/ Snyderville	\$ 7,568,000
11	Grade separate Olympic Pkwy/Newpark Blvd at SR-224	Olympic Pkwy / SR-224 Intersection	Newpark Blvd / SR-224 Intersection	Grade separate intersection	Unincorporated Summit County	\$ 27,094,000
12	Grade separate Ute Blvd at SR-224	Ute Blvd / SR-224 Intersection	SR-224 Intersection	Grade separate intersection	Unincorporated Summit County	\$ 27,035,000
13	Realignment of Old Hwy 40 at SR-248	Atkinson Rd	SR-248	Realign Hwy-40 to intersect with SR-224 approximately 700 feet to the east	Unincorporated Summit County	\$ 4,981,000
14	Upgrade I-80 Pedestrian Bike Tunnel	Pace Frontage Rd	Beehive Dr	Upgrade tunnel to include 2 vehicle lanes	Unincorporated Summit County / Silver Creek Village	\$ 9,948,000
15	S Hoytsville Rd improvements	Coalville	Wanship	Add shoulder and improve intersections for approximately 5 miles	Unincorporated Summit County	\$ 7,781,000
16	Promontory Ranch Rd /Silver Creek Dr intersection improvements	Intersection	Intersection	Upgrade intersection to a roundabout	Unincorporated Summit County	\$ 2,165,000

Table 9**Active Transportation Plan: Active Transportation Projects 2020-2030**

Map	Project Name	From	To	Improvement	Location	Estimated Cost
17	SR-32 Pathway	Main Village Way, Francis	Upper Loop Road, Kamas	Construct new 5.1-mile shared use path along the east side of SR-32	Francis/Kamas/Marion	\$ 665,000
18	Silver Summit Parkway Sidepath	Existing trailhead at Hwy 40 Silver Summit Pkwy intersection (west)	Rail Trail at Promontory Ranch Rd	Construct new 1.1-mile sidepath along Silver Summit Pkwy to connect existing trails	Unincorporated Summit County/Silver Creek	\$ 144,000
19	Sidepath in conjunction with Bitner to Silver Creek new road	Bitner Ranch Rd	Silver Creek Rd	Construct a sidepath for approximately 2.0-miles linking the existing end of the sidepath at Bitner Rd and running along the new road connection	Unincorporated Summit County/Silver Summit	\$ 274,560
20	SR-224 rail reconstruction (east side)	Ute Blvd	Olympic Pkwy	Resurface and widen (if possible) 0.2 miles of paved trail on the east side of SR-224	Snyderville / Kimball Junction	\$52,800 (\$50/ft)
21	Rail Trail Pavement Upgrade	Hwy 248	Coalville	Pave 18.9 miles of existing Rail Trail	Countywide	\$1,900,000 (\$19/ft)
22	New Old Ranch Rd Sidepath	Split Rail Lane	Proposed Round Valley Connector	Develop a 1.9 mile sidepath along Old Ranch Rd connecting Willow Creek Park to Round Valley Open Space	Snyderville / Kimball Junction	\$ 248,000
23	McCleod Creek / Willow Creek Loop / East SR-224 Trail	Hwy 224 north of McPolin Farmland	Creek Circle	Pave the existing 2.6 miles of McCleod Creek Trail, Willow Creek Loop, and East SR-224 Trail	Snyderville / Kimball Junction	\$ 105,000

24	Blue Sky bridge to Rail Trail	Blue Sky Road parking lot		Provide a bridge across the creek from the Rail Trail to the Blue Sky parking lot	Eastern Summit County	\$ 38,000
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Phase II (10-20 years) to meet demand by 2040

Table 10
Long Range Transportation Plan: Roadway Projects 2030-2040

Map	Project Name	From	To	Improvement	Location	Estimated Cost
1	Old Highway 40 widening	Silver Creek Dr & Old Hwy 40 roundabout	UDOT maintenance facility	Widen Old Hwy 40 to four lanes for approximately 0.6 miles	Unincorporated Summit County/ Silver Creek	\$4,400,000
2	Old Highway 40 widening	Forestdale Drive	S.R. 248	Construct a two way turn lane (TWTL) on Old Hwy 40 for approximately 1.10 miles	Unincorporated Summit County	\$5,400,000
3	Chalk Creek Extension to connect to Mirror Lake, Hwy new road	Chalk Creek Rd	Mirror Lake Hwy	Construct new two lane road for approximately 10-15 miles	Summit County	\$ 28,800,000
4	Hobson Lane/Frontage Road intersection Improvements for safety	Hobson Ln	W Hoytsville Rd/I-80 Frontage Rd	Upgrades for safety at the "v" intersection	Unincorporated Summit County/Coalville	\$190,000
5	Judd Lane/Frontage Road Intersection improvements for safety	Judd Ln	I-80 Frontage Rd	Upgrades for safety	Unincorporated Summit County/Hoytsville	\$94,000

Table 11
Active Transportation Plan: Active Transportation Projects 2030-2040

Map	Project Name	From	To	Improvement	Location	Estimated Cost
6	S.R. 224 Overcrossing	Near Canyons Resort Dr	Near Village Round Dr	Construct a new non-vehicular bridge crossing S.R. 224	Snyderville	\$900,000

Phase III (20-25 years) to meet demand by 2050

Table 12						
Long Range Transportation Plan: Roadway Projects 2040-2050						
Map	Project Name	From	To	Improvement	Location	Estimated Cost
1	Promontory Ranch Road widening	Silver Creek Dr	Silver Creek (east of businesses)	Construct new two way turn lane TWTL for approximately 0.20 miles	Summit County/ Silver Creek	\$3,000,000

Figure 11 10 *Snyderville Basin Area Projects*

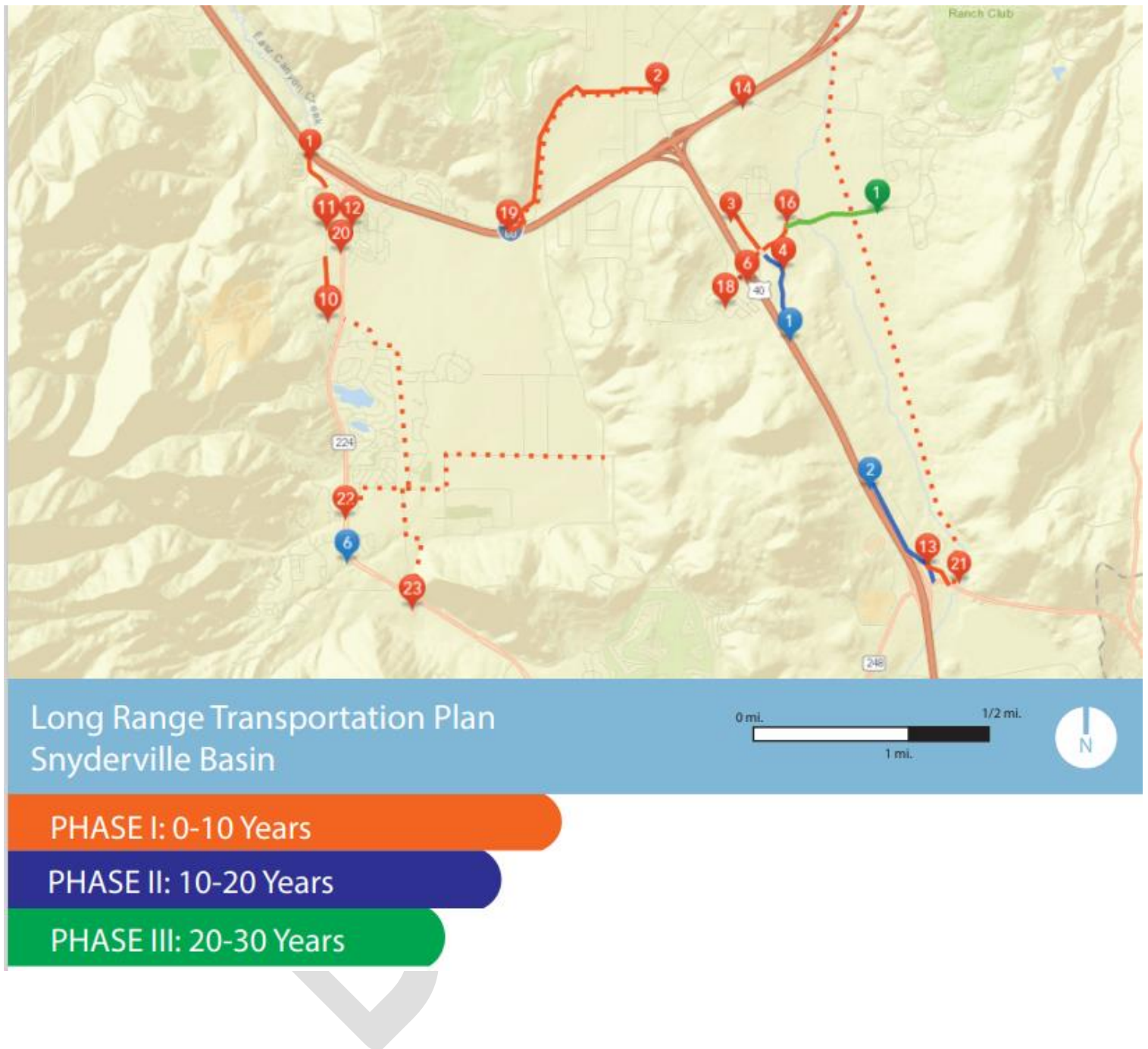
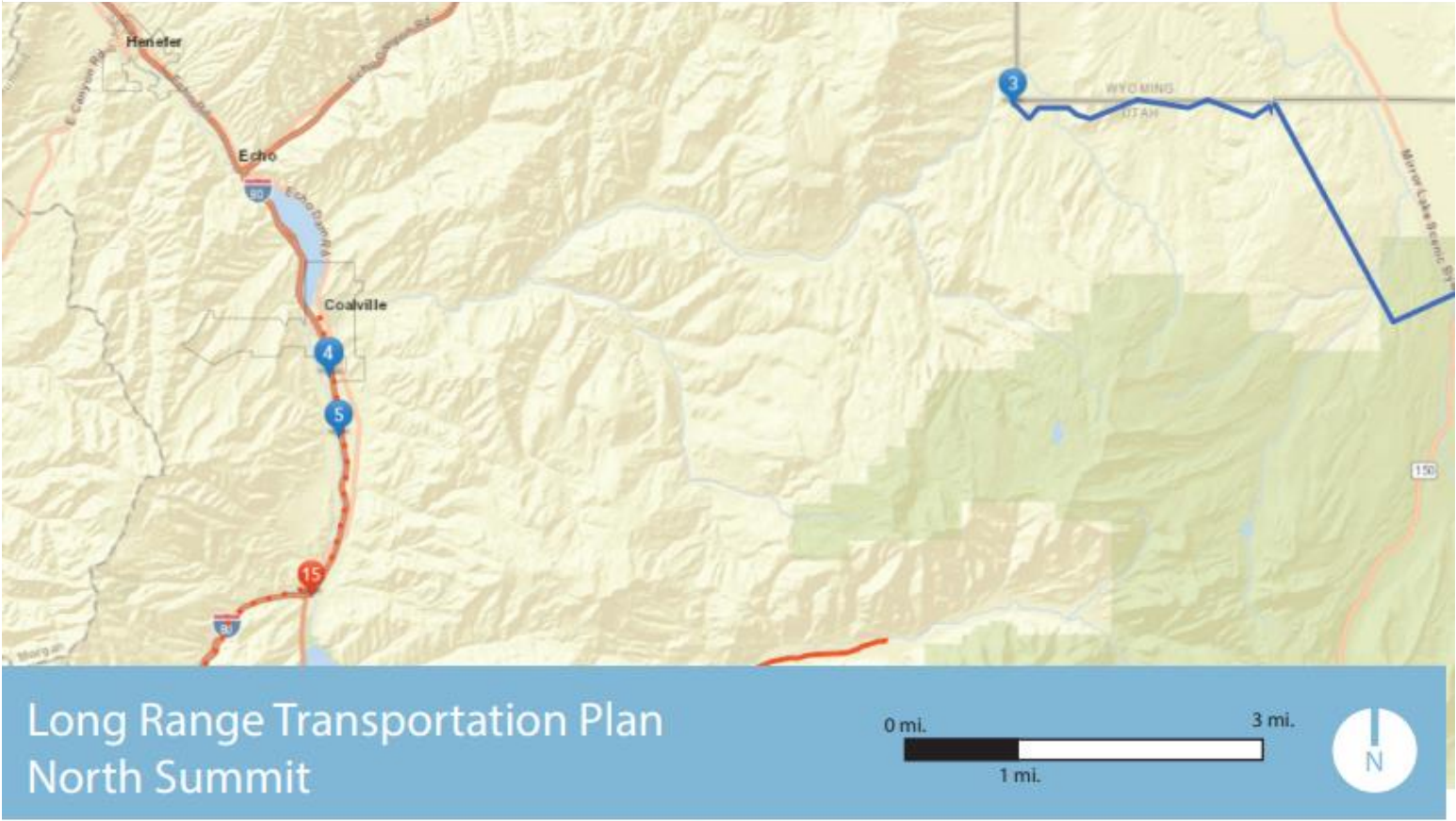


Figure 1211
North Summit Area Projects

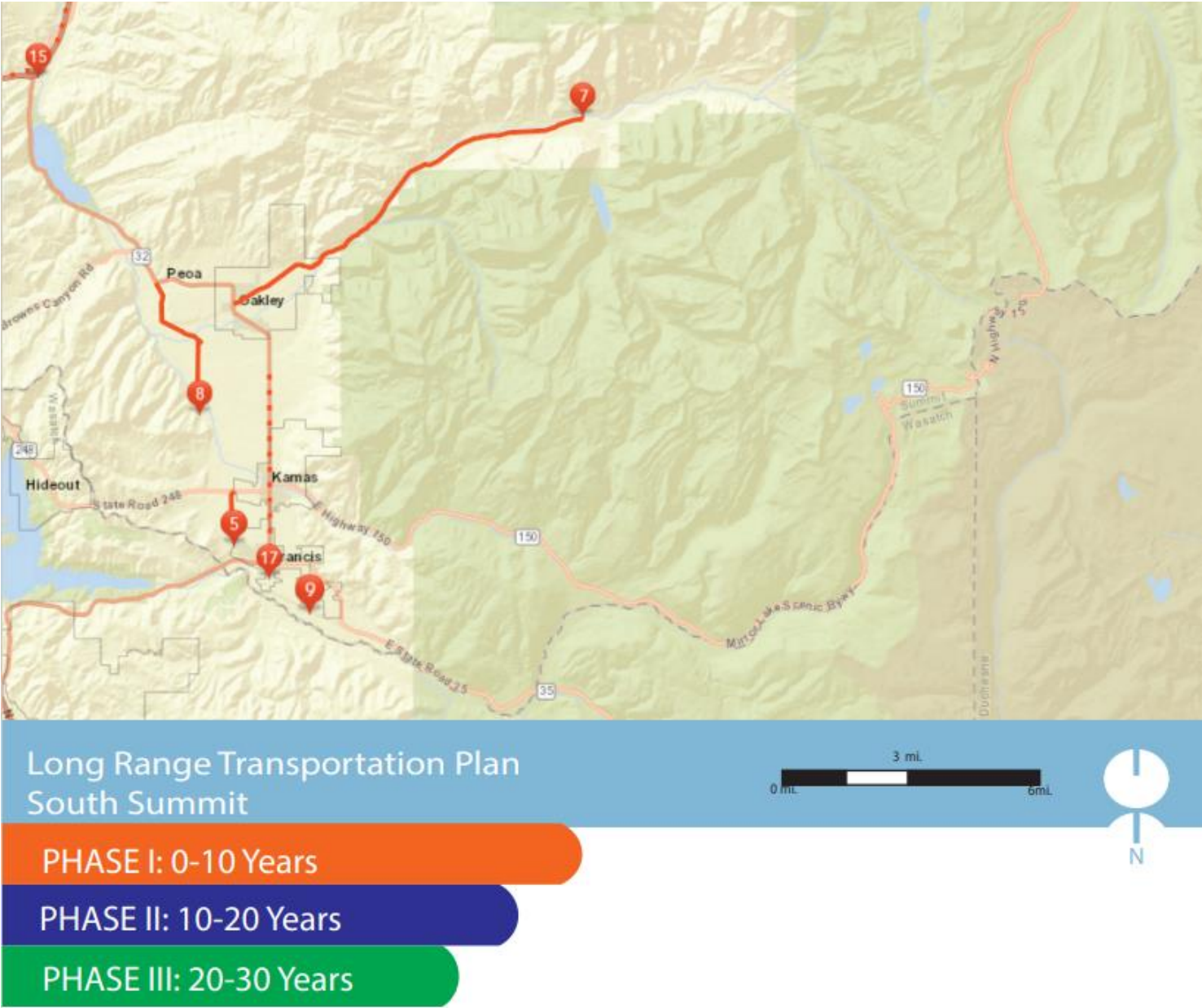


PHASE I: 0-10 Years

PHASE II: 10-20 Years

PHASE III: 20-30 Years

Figure 1213
South Summit Area Projects



Funding

Federal laws and regulations require long-range transportation plans to be fiscally constrained meaning the cost of projects included in the plans must not exceed the funding that can reasonably be expected over the planning horizon.

Transportation needs for rural or non-urban areas are planned and funded through each state's department of transportation. Having a residential population under 50,000 as of the 2010 U.S. Census, Summit County is designated a rural place and receives federal and state transportation funds through the Utah Department of Transportation (UDOT). Summit County also uses local taxes and revenues for local projects.

In addition to programmed funds, every feasible federal, state, and local funding source such as grants, borrowing, and private contributions should be pursued. The County will maintain a prioritized list of projects that are "shovel-ready" and can be rapidly advanced when additional funding becomes available. Below are several other sources of money that can be considered as projects are planned.

Impact Fees

Impact fees are a revenue source collected as new development occurs in the Snyderville Basin. They are assessed for each project as a way to mitigate impacts to the roadway system and are based on the number of additional PM peak vehicle trips that the new uses will generate. Impact fees can only be used for capacity-related project in the basin that are identified on the LRTP.

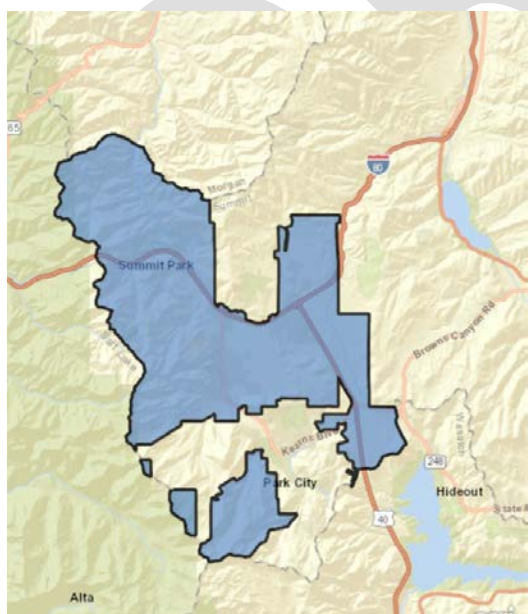


Figure 1413 Snyderville Basin Transit District Boundary

Transit District (Snyderville Basin)

An area covering most of the developed parts of the County and where zoning allows for commercial uses. A portion of sales tax generated pays for transit services within this district. Shown in Figure 14.

Special Improvement Area

A value-added tax assessed on specific areas of the County that will directly benefit from the improvements made with the revenue. Improvements in these areas and the money used to fund them are necessary to avoid damage if the conditions are neglected.

Kimball Junction Transportation Special Service District

Property owners within this district contribute annually to provide specifically for transit services to and from Kimball Junction within the boundary. The exception includes properties within the Canyons Resort who are part of a separate agreement to fund transit.

UDOT Planned Projects

The LRTP identifies projects that Summit County will be responsible for funding and constructing. However, because the Utah Department of Transportation builds, operates, and maintains many miles of state roads within Summit County, it can be helpful to consider UDOT's planned project activities. Table 13 lists several projects within Summit County that are in various phases of study.

Table 13				
Current and Planned UDOT Projects in Summit County (excluding Park City)				
Project Name	Date	Program/Plan	Cost	Description
UDOT- Region 2				
I-80; Kimball Junction Interchange	tbd	TIP	\$100,000,000	Upgrade the existing interchange for all directions of travel
BRT from Kimball Junction to Park City (SR-224)	tbd	STIP	\$2,500,000	Cooperative project with Summit County to expand 224 for transit-only lanes
I-80 Bridge Jeremy Ranch	tbd	STIP	\$20,500,000	Replace existing bridge for safety and mobility
US-40; I-80 to SR-248	tbd	Rehabilitation High Volume	\$1,500,000	Improvements to vehicular mobility on the corridor between I-80 and SR-248
US-40; I-80 to Wasatch County I	tbd	Rehabilitation High Volume	\$1,800,000	Improvements to vehicular mobility on the corridor between SR-248 and Wasatch Co
Bridge Replacements at Rockport Reservoir	tbd	Bridge Replacement and Rehabilitation	\$4,000,000	Upgrade or replace existing bridge for safety and mobility
SR-150; SR-32 to Samak	tbd	Preservation High Volume	\$1,000,000	
Echo Bridge Deck Preservation	tbd	Bridge Preservation	\$1,100,000	Preserve and rehabilitate the existing bridge to avoid full replacement
Active Warnings on County Road in Echo	tbd	Railway-Highway Grade Crossing	\$305,000	Construction of new and updating of existing railroad crossings
SR-86 and SR-65; Summit Co. to Henefer	tbd	Preservation Low Volume	\$900,000	
SR-86 and SR-65; Summit Co. Line to Henefer	tbd	Preservation Low Volume	\$900,000	

APPENDIX

Technical Summary of Modeling Process

This section of the Long Range Transportation Master Plan provides a technical description of the procedures and parameters used by Summit County to model travel demand and transportation system performance. The Summit County Travel Demand Model ("the model") was used to evaluate existing and future transportation needs in the plan. The model estimates travel patterns in Summit County and the northern part of Wasatch County based on demographic characteristics of where people live and participate in their daily activities, as well as the transportation facilities available to them. The model forecasts where, when, and by what mode people are likely to travel, and assigns these trips to facilities that represent the likely best route for each trip. Model output is used to evaluate transportation corridors where the future travel demand is likely to exceed capacity, to assess projects that meet the travel demand, and to analyze the air quality and other impacts of the transportation system.

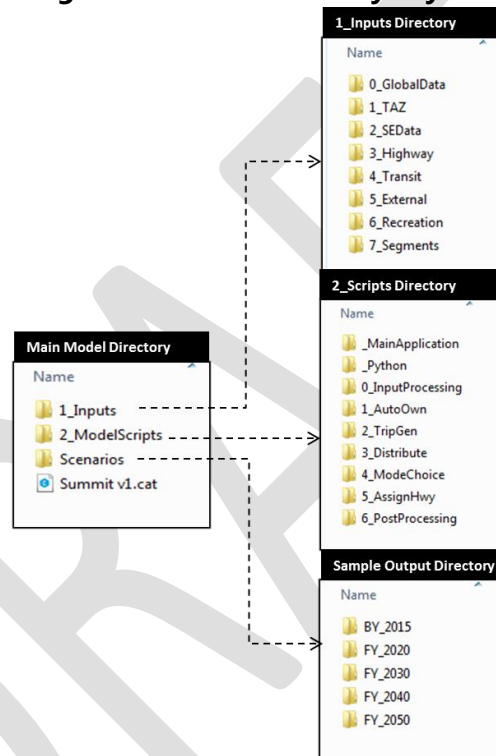
The model is a trip-based travel model that estimates average winter weekday trips with options to estimate other seasons and day-of-week conditions (weekend and peak). Visitors, who are housed in secondary housing units, such as second homes, condos, cabins and hotel units, are also represented in the model. The number of visitors can be adjusted to reflect the season and peak condition being modeled. Special consideration is given to ski resort visitation, which is also varied by season, day-of-week, and future visitation projections. External trip movements into, out of, or through Summit County, as well as resident trips, are also modeled. The model represents travel by auto, transit, and non-motorized trip modes for AM, mid-day, PM and evening time periods. The model is calibrated to 2015 data. The model is implemented within the CUBE modeling software package, with the application written in CUBE's native Voyager scripting. The current version of the model was begun in 2016 as a jointly funded project by UDOT, MAG, Summit County, and Park City.

The model represents the state-of-the-practice in travel demand modeling (including several advanced features) required to meet the needs of pertinent Federal legislation and guidance and recommendations by the Travel Model Improvement Program of the US Department of Transportation, the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), and the Environmental Protection Agency (EPA). This type of travel model is also used for long range transportation planning by the Utah Department of Transportation (UDOT), Wasatch Front Regional Council (WFRC), Mountainland Association of Governments (MAG), and other metropolitan planning organizations in Utah.

1. Model Design and Structure

The model is designed with 3 directories: the input directory, the model script directory, and the output directory. The input directory contains all the necessary data to run the model. The model script directory contains all the scripts, applications, and instructions necessary to run the model. These files tell the software how to use the input and how to visualize the model in CUBE. The output directory contains all the results from the different scenarios. The model directory is shown below in Figure 1.

Figure 1: Model Directory Layout



The model follows a common “four-step” modeling process consisting of:

- Trip generation
- Trip distribution
- Mode split
- Trip assignment

At the start of a model run, the input and pre-processing models run. The trip generation model then estimates trip-ends by zone based on household and employment characteristics. These trip-ends are then paired into trips in the trip distribution model. In the mode choice model, a mode of travel is identified for each trip. Vehicle trips are assigned to the highway network in the trip assignment model, during which congestion levels on each road are estimated

consistent with route choices. Transit trips are assigned to the transit network in the mode choice step.

Time Periods

The trip generation and trip distribution models are daily models, while the mode choice model distinguishes peak and off-peak periods, and the traffic assignment model estimates traffic flows for four periods of day:

- AM Peak: 6-9 AM
- Midday: 9 AM – 3 PM
- PM Peak: 3-6 PM
- Evening/Off-peak: 6 PM – 6 AM

Trip Purposes

The model assigns trips from one area to another based on trip purpose. Person trip purposes are converted to vehicle trip purposes. The classifications are based on how the model estimates and processes these trips. The person trip purposes are:

- **Home-Work Trips (HBW):** trips made between the traveler's home and the place of work, in either direction.
- **Home-Shopping Trips (HBShp):** trips made between the traveler's home and shopping (e.g. retail) locations, in either direction
- **Home-Other Trips (HBOth):** trips made between the traveler's home and all other non-work related destinations not already accounted for by the previously defined trip purposes, in either direction.
- **Home-School Trips (HBSch):** trips made between the traveler's home and school and include all public, private, and charter schools kindergarten through high school, in either direction
- **Home-Based College Trips (HBC):** trips made between the traveler's home and college. This purpose is included in the model but is zero because there are no colleges in Summit County.
- **Recreation Trips (Rec):** trips going to ski resorts or other recreational areas.
- **Non-home Based Work Trips (NHBW):** trips made between the traveler's work and some other non-home location.
- **Non-work trip chaining (NHBNW):** trips made between non-home and non-work locations.

Summit County has a high number of secondary dwelling units that act differently than the primary dwelling units. The secondary dwelling units are occupied with visitors and the primary

dwelling units are occupied with residents. A resident takes approximately 10 trips per day while a visitor makes approximately 6 trips per day because they do not make HBW nor HBSch trips.

The person trips are further stratified by direction of travel and they are:

- **Internal-Internal Trips (II):** trips that both begin and end within the model
- **Internal-External Trips (IX):** trips that have their residence within the model but travel outside of the model
- **External-Internal Trips (XI):** trips that have their residence outside the model but travel into the model
- **External-External Trips (XX):** vehicle trips that begin and end outside the model but have to pass through it

All of the external trips from cars and medium/heavy trucks come from the Utah Statewide Travel Model (USTM). The model uses the pattern from USTM to determine how many of these trips are IX, XI, and XX. If the trips are XX then USTM knows which external area the trip is coming from and going to.

The model also includes truck trips (vehicle trips) stratified by type of truck and they are:

- **Light Truck Trip:** 4-tire commercial vehicle trips that could be a passenger car or light truck that represents trips circulating in the model for business reasons like moving goods.
- **Medium Truck Trips:** single-unit trucks such as a box truck.
- **Heavy Truck Trips:** multi-unit trucks such as semi-trucks or tractor trailers.

Calibration

The model was calibrated to a base year of 2015 winter conditions using traffic UDOT and local traffic volumes and transit ridership.

2. Inputs

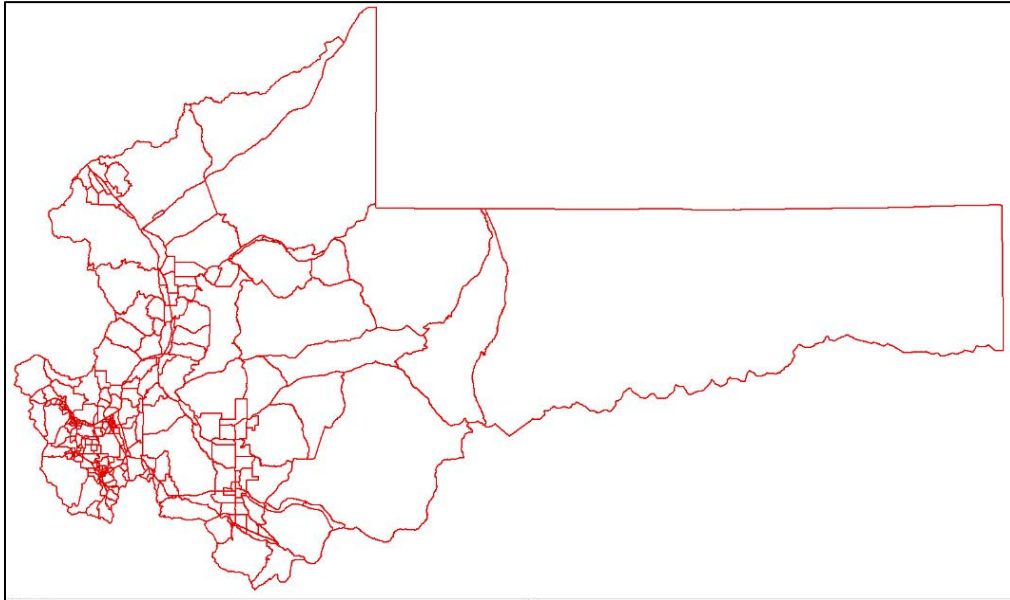
The input data includes traffic analysis zone (TAZ), socioeconomic data, highway network, transit network, external trips, recreational trips, and segments. All of this data is used to run the model and the assumptions and data sources are explained in the pertinent sections.

Traffic Analysis Zones

The model is a zone-based forecasting tool, modeling travel between aggregate Traffic Analysis Zones (TAZ). TAZs do not overlap and cover the entire Summit County area and include the northern portion of Wasatch County. The TAZ boundaries were made based on proposed 2010 census blocks, block groups, tracts, highway network, land use, and geography. The TAZ for this model were taken from the UDOT model and then split based on local knowledge of areas. There are 292 zones in the model. Land-use and socioeconomic data are summarized within

each zone and travel is estimated between each zone. Summit County zones are numbered 1-278 and Wasatch County zones are 281-294. The TAZ for the model is shown below.

Figure 2: Model TAZ Structure



Each zone is a trip producer and attractor. Within the model, trips moving from zone to zone are assumed to begin/end at the zone's centroid. The centroid should be placed in the center of mass development and is connected to the link (e.g. road) via a centroid connector. The entire model is made up of TAZ, links, nodes, and centroids within each TAZ. An example is shown below.

The TAZs were aggregated to create large and medium districts based on cities, towns, and development areas. The image below shows the different districts, and the Table 1 describes each district. There are 3 large districts (Figure 3) and 9 medium districts (Figure 4).

Figure 3: Map of Large Districts

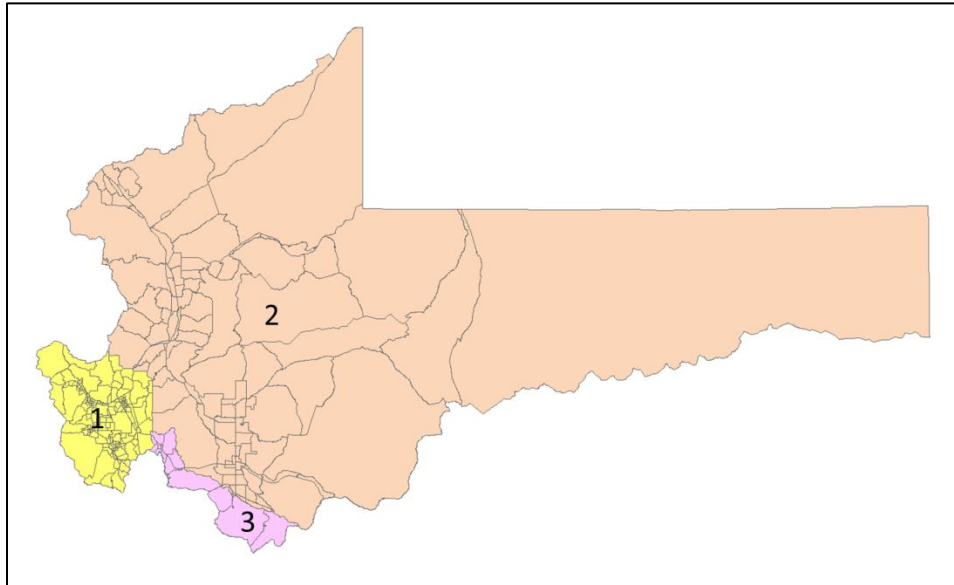


Figure 4: Map of Medium Districts

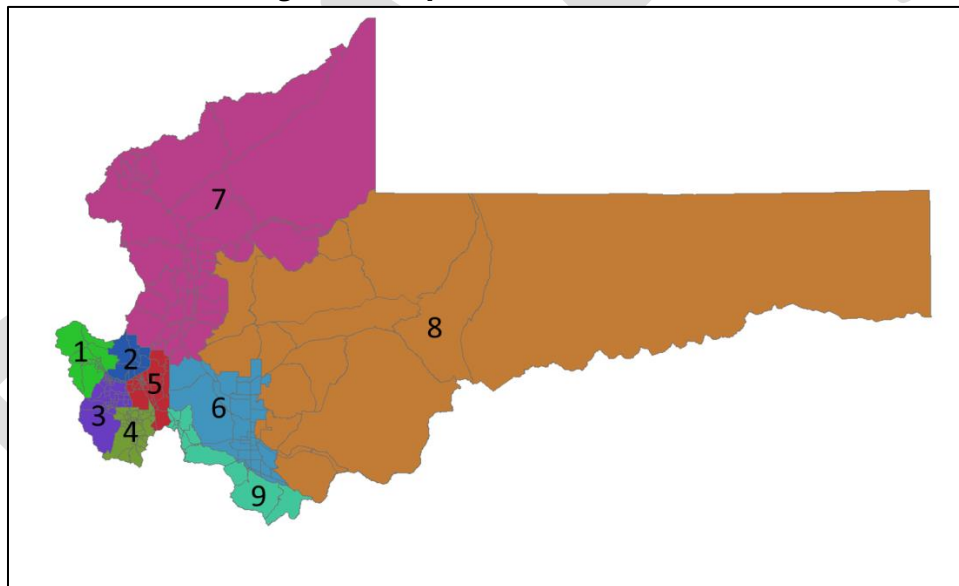
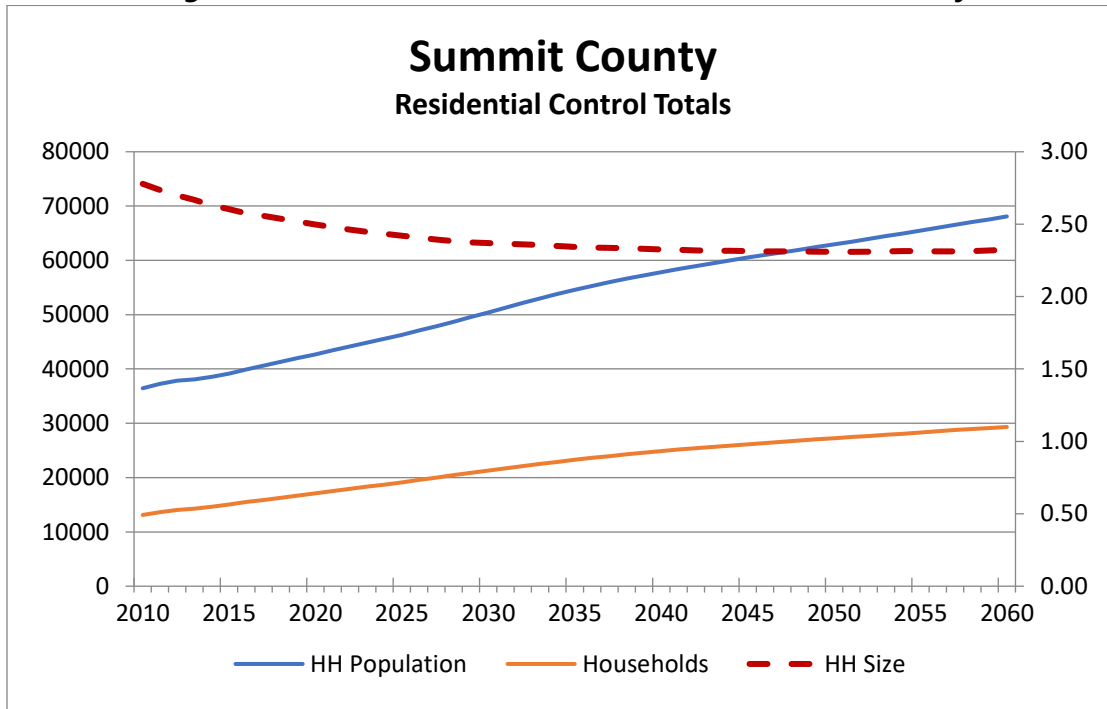


Table 1: Description of Large and Medium Districts	
DISTLRG	NAME
1	Snyderville Basin
2	Eastern Summit
3	Wasatch
DISTMED	NAME
1	Sum Jer Pine
2	Silver Creek
3	Kimball Snyder
4	Park City
5	Highland Promontory
6	South Summit
7	North Summit
8	Uintas
9	Wasatch

Socioeconomic Data

The units for the socioeconomic data set in the model are households, household population, employment, and income. Each TAZ in the model has a number of households, population, and total employment. The Governor's Office of Planning Budget (GOPB) contracts with the Gardner Policy Institute (GPI) at the University of Utah to develop and forecast county level population and employment totals. The GPI 2017 report numbers are used as control totals for households, household population, and employment for all of Summit County in the model from 2010 to 2060. Figure 5 shows how the control totals change year by year.

Figure 5: GPI Residential Control Totals for Summit County



The 2015 base year started with the 2010 Census which reports the number of households and population at the block level. These blocks are aggregated to the TAZ level. The household growth is increased from 2010 to 2015 based on the year built from the GIS parcel data from the Summit County Information Technology Department. The population control totals used in the model represent household population only and exclude group quarter population. A group quarter includes populations in places like prisons and nursing homes, for example, and this population does not make trips and is therefore excluded. The household population control totals used in the model from 2015 to 2050 and shown in the Table 2 below.

Table 2: Summit County Household Population Control Totals	
Year	HH Population
2015	39,278
2020	42,829
2030	50,558
2040	57,983
2050	63,097

Employment data was obtained from the Department of Workforce Services (DWS). Since the DWS data is protected it was used as an initial base year allocation and as a reference points. Within the model there are 12 different employment classifications shown in Table 3. The

controls totals for each employment classification for the years 2010 to 2060 are represented in Figure 6 and Table 4.

Table 3: Model Employment Classification and Description	
Employment Classification	Description
RETL	Retail Trade
FOOD	Accommodations, Food Services
MANU	Manufacturing
WSLE	Wholesale Trade, Utilities, Transportation & Warehousing
OFFI	Information, Professional & Technical Services, Management of Companies
GVED	State & Local Government, Education Services, Federal Civilian, Federal Military
HLTH	Health & Social Services
OTHR	Finance & Insurance, Administrative & Waste Services, Arts, Entertainment & Recreation
FM_AGRI	Farming, Fishing
FM_MING	Natural Resource Extraction
FM_CONS	Building Activities
HBJ	Home Based Jobs

Figure 6: Employment Control Totals

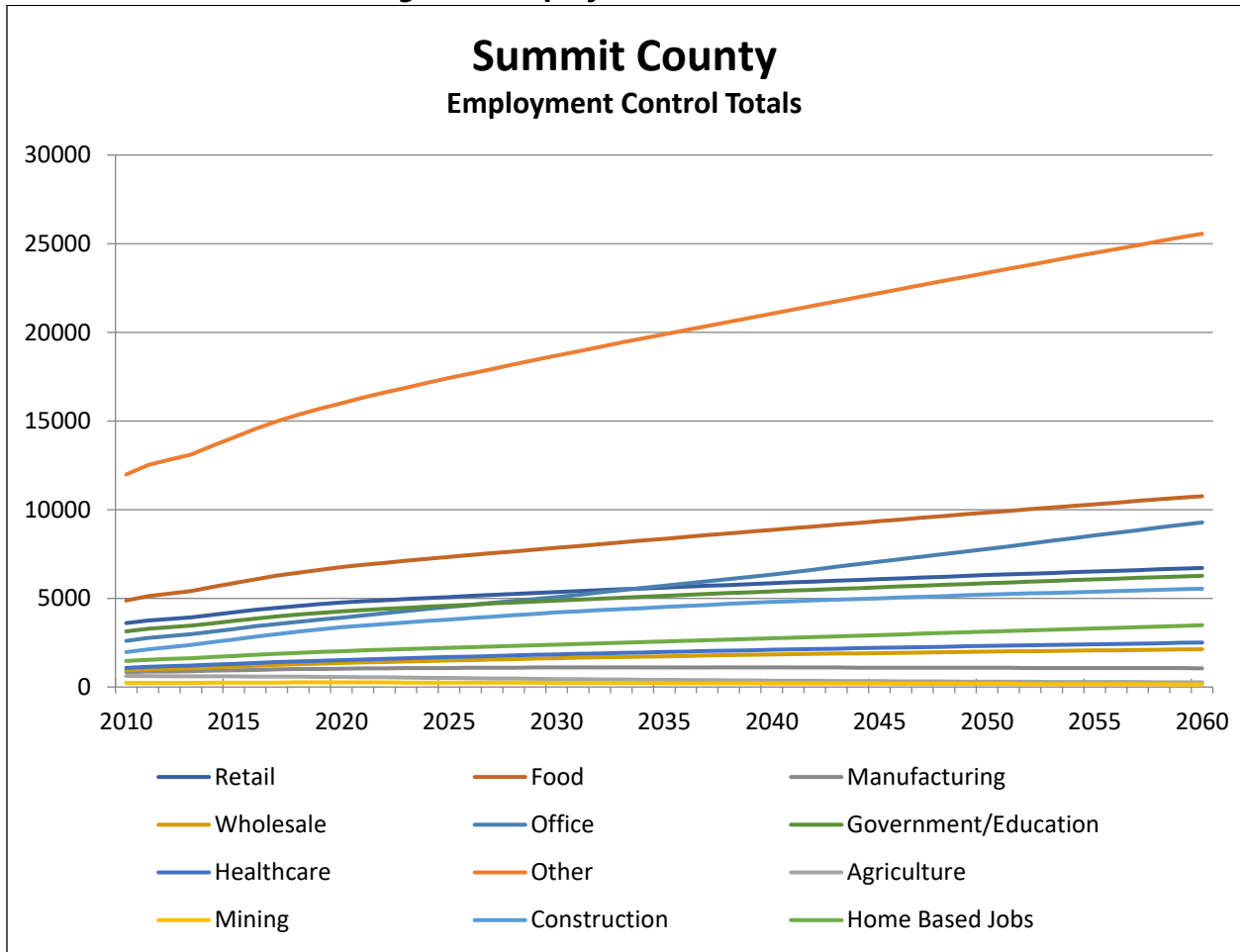


Table 4: GPI Employment Control Totals for Summit County

Employment Classification	YEAR				
	2015	2020	2030	2040	2050
RETL	4207	4760	5352	5857	6311
FOOD	5852	6763	7847	8858	9840
MANU	941	1038	1106	1106	1083
WSLE	1151	1350	1630	1835	1993
OFFI	3272	3909	5067	6331	7776
GVED	3722	4265	4878	5394	5855
HLTH	1306	1518	1844	2101	2317
OTHR	14073	16002	18686	21056	23359
FM_AGRI	598	566	451	358	302
FM_MING	246	264	237	202	171
FM_CONS	2678	3365	4205	4802	5208
HBJ	1755	2018	2388	2747	3117

School Enrollment

School enrollment is a federal data set that was developed by WFRC for statewide use. The data includes kindergarten through 12th grade and includes private, public, and charter schools. It is used to pattern where HBSch trips will travel.

Secondary Units

The model uses the following secondary units to measure the number of visitors that travel within the county:

- Secondary Home
- Cabin
- Condo
- Hotel Unit

Secondary homes are allocated according to the Summit County Assessor's Office based on claiming a home as secondary for tax purposes. This data was put into parcel level data in GIS format by the Summit County Information Technology Department. Cabins are secondary homes identified by the Assessor's Office but in remote locations, mainly in the Unita Mountain area, and are difficult to get to in the winter due to road conditions. Condos and secondary homes identified in the resort areas that are mainly used seasonally. Hotel units are any hotel room within the Summit County. All these units are filled based on a percentage for different types of seasons. This model was run for the Winter and Summer seasons because those are the peak seasons in Summit County. However, because the different seasons have uses for the secondary units the percentages change. The Tables 5 and 6 below explain the assumption for percent occupied used in the Winter season and the assumption for percent occupied used for the Summer season.

Table 5: Winter Season Secondary Units Percent Occupied	
Type of Secondary Use	Percent Occupied
Second Home	25%
Cabin	1%
Condo	70%
Hotels	70%

Table 6: Summer Season Secondary Units Percent Occupied	
Type of Secondary Use	Percent Occupied
Second Home	75%
Cabin	95%
Condo	50%
Hotels	50%

DRAFT

Appendix B

Summit County Transportation Impact Fee Facilities Plan

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Summit County Transportation Impact Fee Facilities Plan



February 9, 2022

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EXECUTIVE SUMMARY

The purpose of the Summit County transportation Impact Fee Facilities Plan (IFFP) is to identify public roadway improvements that are needed to accommodate anticipated development and to determine which projects may be funded with impact fees. This document focuses on the County roadway improvements that will be needed over the next 10 years.

This analysis incorporates information from the Summit County Transportation Master Plan (TMP) update. The TMP includes information regarding the existing and future demands on the transportation infrastructure and the proposed improvements. It is anticipated that the traffic growth on County roadways between 2020 and 2030 will be approximately 5,197 PM peak hour trips in the Basin area and 622 PM peak hour trips in the East area.

20 projects have been planned by 2030 to accommodate future development and growth. The impact fee eligible cost of each project was calculated based on the project type, existing and future roadway volumes, pass-through traffic for roadway projects, and trail miles. As shown in Table ES-1, the total impact fee eligible cost for Summit County in the next 10 years is \$12,446,647, including \$10,796,253 for the Basin area and \$1,650,394 for the East area.

Table ES-1: Transportation Project List

	#	Description	2030 Cost	% Eligible	Eligible Cost
Basin	B1	Extend Landmark Dr. from Olympic Pkwy to Bear Cub Dr. (2 Lanes)	\$7,568,000	11.7%	\$885,456
	B2	New McCleod Creek / Willow Creek Loop / East SR-224 Trail	\$105,000	72.2%	\$75,810
	B3	New Bitner Rd. extension from Bitner Rd. to Silver Creek Rd. (2 Lanes)	\$16,623,000	6.7%	\$1,090,291
	B4	New Old Ranch Rd. Sidepath	\$248,000	72.2%	\$179,056
	B5	Widen Pace Frontage Rd. from Silver Creek Dr. to Park City Storage (4 Lanes)	\$3,755,000	38.5%	\$1,445,675
	B6	Upgrade I-80 pedestrian tunnel near Silver Creek Village with vehicle lanes (2 Lanes)	\$9,948,000	1.3%	\$129,324
	B7	Upgrade Silver Creek Dr. / Pace Frontage Rd. roundabout to dual-lane roundabout	\$6,469,000	18.7%	\$1,209,703
	B8	New Silver Summit Pkwy Sidepath	\$144,000	72.2%	\$103,968
	B9	Widen Silver Creek Dr. from Pace Frontage Rd. to Promontory Ranch Rd. (4 lanes)	\$3,311,000	25.2%	\$834,372
	B10	Upgrade Promontory Ranch Rd. / Silver Creek Dr. intersection to one-lane roundabout	\$2,165,000	30.5%	\$660,325
	B11	Grade separation of Olympic Pkwy/Newpark Blvd at intersection with SR-224	\$27,094,000	6.2%	\$1,679,828
	B12	Grade separation of Ute Blvd at intersection with SR-224	\$27,035,000	6.2%	\$1,676,170
	B13	Realignment of Old Highway 40 at the intersection with S.R. 248	\$4,981,000	14.7%	\$732,207
	B14	Widen Landmark Drive from Landmark Loop to Outlets Roundabout (4 lanes)	\$1,742,000	5.4%	\$94,068
Basin Subtotal			\$111,188,000		\$10,796,253
East	E1	New Blue Sky bridge to Rail Trail	\$38,000	72.2%	\$27,436
	E2	New Hallam Road extension from SR-248 to Lambert Ln. (2 Lanes)	\$4,781,000	15.2%	\$726,712
	E3	Pave Democrat Alley	\$4,775,000	1.2%	\$57,300
	E4	New SR-32 Pathway	\$665,000	72.2%	\$480,130
	E5	Add shoulder & improve intersections along Hoytsville Rd.	\$7,781,000	3.8%	\$295,678
	E6	Widen Weber Canyon Rd. by adding turn lanes from Oakley to the end (3 Lanes)	\$10,523,000	0.6%	\$63,138
East Subtotal			\$28,563,000		\$1,650,394
TOTAL			\$139,751,000		\$12,446,647



ACKNOWLEDGEMENTS

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GLOSSARY OF TERMS

ADT	Average Daily Traffic
IFA	Impact Fee Analysis
IFFP	Impact Fee Facilities Plan
ITE	Institute of Transportation Engineers
LOS	Level of Service
TDM	Travel Demand Model
TMP	Transportation Master Plan
UDOT	Utah Department of Transportation



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I. INTRODUCTION

A. OVERVIEW

The purpose of the Summit County Transportation Impact Fee Facilities Plan (IFFP) is to identify public roadway improvements that are needed to accommodate anticipated development and to determine which projects may be funded with impact fees. Utah law requires communities to prepare an IFFP prior to preparing an impact fee analysis (IFA) and establishing an impact fee. According to Title 11, Chapter 36a, Section 302 of the Utah Code, the IFFP is required to identify the following:

- The existing level of service (LOS)
- A proposed LOS
- Any excess capacity to accommodate future growth at the proposed LOS
- The traffic demands placed on existing public facilities by new development at the proposed LOS
- A proposed improvement plan to address the traffic demands
- A general consideration of all potential revenue sources to finance system improvements

This analysis incorporates information being developed for the on-going update to the Summit County Transportation Master Plan (TMP), which is currently being completed by the County. The TMP will include information regarding the existing and future demands on the transportation infrastructure and the proposed improvements to provide acceptable levels of service. The TMP will provide additional detail regarding the methodology used to determine future travel demand.

This document focuses on the improvements that will be needed over the next 10 years. Utah law requires that any impact fees collected for those improvements be spent within six years of being collected. Only capital improvements are included in this plan; all other maintenance and operation costs are assumed to be covered through the County's General Fund as tax revenues increase as a result of additional development.

II. ANALYSIS METHODOLOGY

A. PURPOSE

The purpose of this chapter is to discuss the LOS methodology and the proposed LOS threshold of Summit County roadways and trails. According to the Impact Fees Act, LOS is defined as “the defined performance standard or unit of demand for each capital component of a public facility within a service area.” The LOS of a roadway segment or intersection is used to determine if capacity improvements are necessary. LOS is measured on a roadway segment using its daily traffic volume as an approximation of PM peak hour congestion. For trail projects, it was determined that County trail miles per capita would be used to identify level of service.

B. ROADWAY LOS

PROPOSED LEVEL OF SERVICE

LOS is a term that describes the operating performance of an intersection or roadway. LOS is measured quantitatively and reported on a scale from A to F, with A representing the best performance and F the worst.

The capacity of roadway segments is generally determined based on the number of lanes and/or functional classification of the roadway. The roadway LOS is then determined by comparing the actual traffic volumes with the capacity. The Summit County standard is that LOS A through LOS C are acceptable for roadway segments. Table 1 summarizes the maximum acceptable capacities (LOS C) for roadway segments as defined by UDOT for long-range planning purposes. LOS C capacities for intersections was identified by a calculation using the roadway segment capacities, UDOT signal data, or sensitivity capacity analyses in Synchro software.

Table 1: Roadway Segment Maximum Capacities (LOS C)

Functional Classification	Number of Lanes	LOS C Capacity (vehicles per day)
Rural Collector	2	7,500
	4	16,000
Small Urban Collector	3	8,500
	5	26,000
<i>Source: UDOT Generalized LOS C Thresholds</i>		

The proposed LOS provides a standard of evaluation for roadway conditions. This standard will determine whether or not a roadway will need improvements. According to the Utah Impact Fee Law, the proposed LOS may:

- Diminish or equal the existing LOS;
- Exceed the existing LOS if, independent of the use of impact fees, the political subdivision or private entity provides, implements, and maintains the means to increase the existing LOS for existing demand within six years of the date on which new growth is charged for the proposed LOS; or

- Establish a new public facility if, independent of the use of impact fees, the political subdivision or private entity provides, implements, and maintains the means to increase the existing LOS for existing demand within six years of the date on which new growth is charged for the proposed LOS

As discussed previously, the proposed LOS threshold for Summit County is LOS C. Therefore, improvements are eligible for impact fees for roadways that operate at LOS D, E, or F.

EXCESS CAPACITY

An important element of the IFFP is the determination of excess capacity on the roadway network. Excess capacity is defined as the amount of available capacity on any given street in the roadway network under existing conditions. This capacity is available for new development in the County before additional infrastructure will be needed. This represents a buy-in component from the County if the existing residents/property owners have already paid for these improvements.

New roads do not have any excess capacity and roads which are not under County jurisdiction have their capacity information removed from the calculations. The excess capacity for roadways that are identified as needing improvements in the IFFP was calculated and accounted for in the impact fee calculations.

TRIPS

The unit of demand for transportation impact is the vehicle trip. A vehicle trip is defined by the Institute of Transportation Engineers (ITE) as a single or one-directional vehicle movement to or from a location during a defined time period. The total traffic impact of a new development can be determined by the sum of the total number of vehicle trips generated by a development in a typical weekday. This trip generation number or impact can be estimated for an individual development using the ITE *Trip Generation*, 10th Edition, 2017.

The modeled roadway volumes and capacities in the travel demand model (TDM) are calculated using daily traffic volumes rather than trips on the roadway. Essentially, this means that a travel demand model "trip" or unit of volume is counted once as a vehicle leaves home, travels on the road network, and then arrives at work for another trip. The ITE Trip Generation method uses driveway counts as its measure of a trip. Therefore, a vehicle making the same journey would be counted once as it leaves home and once again as it arrives at work for a total of two trips. This discrepancy can be corrected simply by adjusting the ITE Trip Generation rates by one half. This calculation will be evident in the IFA.

An additional consideration is that certain developments generate pass-by trips. Pass-by trips are trips taken on the way from one development to another. An example of this is someone stopping at a gas station on the way home from work. The pass-by trip is still counted at the gas station access. However, the pass-by trip was completed by a vehicle already on the road due to other developments.

Pass-by trips do not add traffic to the roadway and, therefore, do not create additional impact. Many land use types in the ITE Trip Generation Manual have a suggested reduction for pass-by trips where applicable. In each case, the pass-by trip reduction rate will be applied to the trip generation rate used in the IFA.

SERVICE AREAS

Summit County has chosen to calculate impact fees separately for two areas: the Snyderville Basin area and the East side of the County. Any development projects within the Basin area will have a different impact fee than projects in the East side.

C. TRAILS LOS

In order to determine the impact fee eligibility of trail projects, the LOS was based on trail miles per capita in the County. The future 10-year horizon condition should not exceed the existing ratio of trail miles per capita to maintain the same LOS. The trail miles include only trails located within the County itself, and not those within City boundaries. The capita includes both residents and employees within the County itself.

The existing (2020) trail miles were identified along with the proposed project trail miles, as shown in Table 2. The summary of existing and future anticipated capita is provided in Table 3.

Table 2: Trail Miles Summary

Scenario	Trail Miles
Existing (2020)	35
New Proposed	11
Future (2030)	46

Table 3: Capita Summary

Scenario	Capita		
	Residents	Employees	Total
Existing (2020)	26,364	16,333	42,697
Future (2030)	31,927	20,451	52,378

Based on the existing trail miles and capita, the existing (2020) ratio is approximately 0.00082 trail miles per capita. With the future (2030) anticipated capita of 52,378 people, this means the County could gather impact fees to have 42.94 total trail miles in 2030, which is less than the proposed 46 trail miles. Of the new proposed 11 trail miles, only 7.94 trail miles would be impact fee eligible. In other words, 72.2% of the proposed new trails can be built with impact fee funding. This percentage was used as the impact fee eligible percentage for all new trail projects.

III. TRANSPORTATION DEMANDS

A. PURPOSE

The purpose of this chapter is to identify the existing and future transportation demands on existing roadway facilities. Future transportation demands are based on new development in the County. Once defined, the transportation demands help identify roadways that have excess capacity and those that require additional capacity due to high transportation demands.

B. ROADWAY CONDITIONS

Future traffic volumes were projected using a TDM. The TDM was a model used for Summit County, prior to a recent combined model for both Summit County and Wasatch County. Summit County staff completed the travel demand modelling to determine future transportation demands. Several new roadways and improvements to existing roadways were identified by Summit County staff as being needed due to new development. Based on the analysis, the following are existing roadways that need improvement:

- Pace Frontage Road
- Silver Creek Drive / Pace Frontage Road intersection
- Democrat Alley
- Silver Creek Drive
- Hoytsville Road
- Weber Canyon Road

The TDM was also used to determine the number of new trips being added to the system due to new development between 2020 and 2030. The new trips by service area are shown in Table 4, provided as a PM peak hour trip end number. A trip end represents the origin or destination of a trip. For example, a vehicle traveling from home to work would count as two trip ends, with one trip end on each end of the route.

Table 4: New PM Peak Hour Trip Ends (2020 to 2030)

Service Area	New PM Peak Hour Trip Ends
Basin	5,197
East	622

IV. MITIGATION PROJECTS

A. PURPOSE

The purpose of this chapter is to discuss the recommended improvements that will mitigate capacity deficiencies on County roadways and the cost of those improvements. The cost of the recommended improvements is critical in the calculation of the impact fees.

B. FUTURE PROJECTS

Poor levels of service on roadways are generally mitigated by building new roads or adding travel lanes. In some cases, additional lanes can be gained by re-striping the existing pavement width. This can be accomplished by eliminating on-street parking, creating narrower travel lanes, and adding two-way left-turn lanes where they do not currently exist. For all roadway capacity improvements, it is recommended to investigate other mitigation methods before widening the roadway. Improvements can also be made at intersections to improve LOS by changing the intersection type or the intersection control. At signalized intersections, methods to improve intersection LOS include additional left and right turning lanes and signal timing improvements.

The existing and future (2030) no-build scenarios were used as a basis to predict the necessary projects to include in the IFFP. For the purposes of this IFFP, only projects that are planned to be completed within the next ten years will be considered. In other words, projects recommended for future (2030) conditions in the TMP were identified and accounted for within this IFFP. Table 5 shows all County projects expected to be constructed in the next ten years to meet the demands placed on the roadway network by new development. These projects are included in the IFFP analysis. UDOT projects and transit projects will be funded with other monies and are therefore not eligible for impact fee expenditure and are not included in this analysis.

C. PROJECT COSTS ATTRIBUTABLE TO FUTURE GROWTH

Table 5 represents all projects expected to be constructed based on the expected 10-year growth. Preliminary cost estimates were completed for each of the proposed projects and inflated to a 2030 condition. The total 2030 cost for the projects is estimated to be \$111,188,000 for the Basin area and \$28,563,000 for the East area. Only a portion of these costs is impact fee eligible. The County will need to find funding to cover the portion of the projects that is not impact fee eligible. The cost that is due to future growth can be shared by new development through the assessment of transportation impact fees.

The amount of each project to be funded by impact fees varies depending on the pass-through traffic, projected traffic volumes, and capacity of each roadway. A vehicle trip is considered pass-through when the origin and the destination for a specific trip occurs outside the County limits. A pass-through traffic analysis was completed on each roadway where a project is planned in the County using a select-link analysis on the travel demand model. Specific pass-through values were assigned to each project roadway based on this analysis. A select-link analysis was also used to estimate the portion of traffic on project roadways generated by Summit County. Overall, the pass-through was found to be zero or close to zero for these County roadways.

Table 5: Roadway and Trail Project List

Area	#	Description	2030 Cost
Basin	B1	Extend Landmark Dr. from Olympic Pkwy to Bear Cub Dr. (2 Lanes)	\$7,568,000
	B2	New McCleod Creek / Willow Creek Loop / East SR-224 Trail	\$105,000
	B3	New Bitner Rd. extension from to Silver Creek Rd. (2 Lanes)	\$16,623,000
	B4	New Old Ranch Rd. Sidepath	\$248,000
	B5	Widen Pace Frontage Rd. from Silver Creek Dr. to Park City Storage (4 Lanes)	\$3,755,000
	B6	Upgrade I-80 pedestrian/bike tunnel near Silver Creek Village with vehicle lanes (2 Lanes)	\$9,948,000
	B7	Upgrade Silver Creek Dr. / Pace Frontage Rd. roundabout to dual-lane roundabout	\$6,469,000
	B8	New Silver Summit Pkwy Sidepath	\$144,000
	B9	Widen Silver Creek Dr. from Pace Frontage Rd. to Promontory Ranch Rd. (4 lanes)	\$3,311,000
	B10	Upgrade Promontory Ranch Rd. / Silver Creek Dr. to roundabout	\$2,165,000
	B11	Grade separation of Olympic Pkwy/Newpark Blvd at intersection with SR-224	\$27,094,000
	B12	Grade separation of Ute Blvd at intersection with SR-224	\$27,035,000
	B13	Realignment of Old Highway 40 at the intersection with S.R. 248	\$4,981,000
	B14	Widen Landmark Drive from Landmark Loop to Outlets Roundabout (4 lanes)	\$1,742,000
East	E1	New Blue Sky bridge to Rail Trail	\$38,000
	E2	New Hallam Road extension from SR-248 to Lambert Ln. (2 Lanes)	\$4,781,000
	E3	Pave Democrat Alley	\$4,775,000
	E4	New SR-32 Pathway	\$665,000
	E5	Add shoulder & improve intersections along Hoytsville Rd.	\$7,781,000
	E6	Widen Weber Canyon Rd. by adding turn lanes from Oakley to the end (3 Lanes)	\$10,523,000

The impact fee eligibility of each roadway widening project was calculated by dividing the new demand from new development in the next 10 years by the future (2030) traffic volume roadway capacity on the subject roadway. This eligibility percentage was then multiplied by the project cost to calculate the impact fee eligible cost for each project. The percentages for existing volume and volume beyond 10 years were also calculated. For new roadway projects, the percent of existing versus next 10 years demand was estimated based on the proportion of new to existing trips generated in each service area. As discussed, trail projects were given an impact fee eligibility of 72.2% based on trail miles per capita.

Funding for regional projects can also come through other sources. In this case, the Snyderville Basin Recreation District plans to contribute \$350,000 towards project B3, extending Bitner Road to Silver Creek Road. A summary of the costs and impact fee eligibility of each project is shown in Table 6. As shown, the total impact fee eligible cost for the planned projects in the next 10 years is \$10,796,253 in the Basin area and \$1,650,394 in the East area, for a total impact fee eligible cost of \$12,446,647.

Table 6: Transportation Impact Fee Eligible Costs

Area	#	2030 Cost	Other Funding	2020		2030		% Pass-through	% Existing	% Eligible (10 Years)	% Beyond 10 Years	Eligible Cost
				ADT	Cap.	ADT	Cap.					
Basin	B1	\$7,568,000	\$0	0	0	3,500	7,500	0%	35.0%	11.7%	53.3%	\$885,456
	B2	\$105,000	\$0	-	-	-	-	N/A	-	72.2%	-	\$75,810
	B3	\$16,623,000	\$350,000	0	0	2,000	7,500	0%	20.0%	6.7%	73.3%	\$1,090,291
	B4	\$248,000	\$0	-	-	-	-	N/A	-	72.2%	-	\$179,056
	B5	\$3,755,000	\$0	3,943	7,500	10,100	16,000	0%	24.6%	38.5%	36.9%	\$1,445,675
	B6	\$9,948,000	\$0	0	0	400	7,500	0%	4.0%	1.3%	94.7%	\$129,324
	B7	\$6,469,000	\$0	16,500	18,750	22,825	33,750	0%	48.9%	18.7%	32.4%	\$1,209,703
	B8	\$144,000	\$0	-	-	-	-	N/A	-	72.2%	-	\$103,968
	B9	\$3,311,000	\$0	6,975	7,500	11,000	16,000	0%	43.6%	25.2%	31.2%	\$834,372
	B10	\$2,165,000	\$0	4,865	9,500	9,140	14,000	0%	34.8%	30.5%	34.7%	\$660,325
	B11	\$27,094,000	\$0	30,000	32,000	34,000	65,000	0%	46.2%	6.2%	47.6%	\$1,679,828
	B12	\$27,035,000	\$0	34,000	32,000	38,000	65,000	0%	52.3%	6.2%	41.5%	\$1,676,170
	B13	\$4,981,000	\$0	16,100	15,000	21,100	34,000	0%	47.4%	14.7%	37.9%	\$732,207
	B14	\$1,742,000	\$0	10,710	8,500	11,580	16,000	0%	66.9%	5.4%	27.7%	\$94,068
Subtotal		\$111,188,000	\$350,000									\$10,796,253
East	E1	\$38,000	\$0	-	-	-	-	N/A	-	72.2%	-	\$27,436
	E2	\$4,781,000	\$0	0	0	4,600	7,500	0.2%	46.0%	15.2%	38.8%	\$726,712
	E3	\$4,775,000	\$0	107	400	200	7,500	0%	1.4%	1.2%	97.4%	\$57,300
	E4	\$665,000	\$0	-	-	-	-	N/A	-	72.2%	-	\$480,130
	E5	\$7,781,000	\$0	2,117	7,500	2,400	7,500	0%	28.2%	3.8%	68.0%	\$295,678
	E6	\$10,523,000	\$0	1,546	7,500	1,600	8,500	0%	18.2%	0.6%	81.2%	\$63,138
Subtotal		\$28,563,000	\$0									\$1,650,394
TOTAL		\$139,751,000	\$350,000									\$12,446,647

Appendix C

Summit County Transportation Impact Fee Analysis

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Summit County



Transportation Impact Fee Analysis



Transportation Impact Fee Analysis

Summary

This Impact Fee Analysis (IFA) is based on the information provided in the Summit County Transportation Impact Fee Facilities Plan (“IFFP”) 2022 prepared by Hales Engineering.

Projected Growth. The IFFP projects that new development in Summit County (“County”) is projected to grow by an estimated 5,819 PM peak hour trips between 2020 and 2030. Growth has been split into two service areas with 5,197 PM peak hour trips attributed to the Basin area and 622 PM peak hour trips attributed to the East area. This growth will require the expansion of existing roads or development of new roads in order to maintain the existing levels of service.

Service Levels. The IFFP states that, “the proposed LOS threshold for Summit County is LOS C. Therefore, improvements are eligible for impact fees for roadways that operate at LOS D, E, or F.”

Service Areas. Summit County has chosen to calculate impact fees separately for two areas: the Snyderville Basin area (“Basin”) and the East area which covers the east side of the County.

Excess Capacity. Summit County has identified excess capacity on existing roads. New development will be expected to pay a “buy-in” component of the impact fee to pay for its share of capacity consumption. The cost of the excess capacity was calculated based on the actual cost of construction and the remaining existing capacity for roads currently serving County residents.

New Construction. Summit County’s IFFP identifies a total of 20 projects, for which at least a portion of the project is necessitated by new development at a total cost of \$139,751,000. However, only a percentage can be attributed to new development within the next 10 years. This reduces the total amount to \$12,446,647 of impact-fee eligible projects within the next 10 years.

Proportionate Share Analysis. A summary of the proportionate share analysis is as follows:

TABLE 1: PROPORTIONATE SHARE ANALYSIS - GROSS COST PER TRIP BY AREA

Description	Basin Area Cost per PM Peak Trip	East Area Cost per PM Peak Trip
Buy-In to Excess Capacity	\$386.65	\$1,197.47
New Construction Cost	\$2,077.40	\$2,653.37
Consultant Costs	\$4.64	\$4.64
Fund Balance	(\$293.76)	\$0.00
Gross Cost per Trip	\$2,174.93	\$3,855.47

The gross cost per PM peak trip is \$2,174.93 for the Basin area and \$3,855.47 for the East area. The cost per trip is then applied to standards set by the Institute of Transportation Engineers (ITE) to evaluate the number of average daily trips per development type.

The County may choose to enact any fee up to the maximum fees shown below.

TABLE 3: MAXIMUM TRANSPORTATION IMPACT FEES INTO MAJOR GROUPINGS

ITE Code	ITE Land Use	Unit	ITE Daily Trip Rate	Pass-By	Basin Area Impact Fee	East Area Impact Fee
110	General Light Industrial	1,000 SF (Gross)	0.63	0%	\$1,370.21	\$2,428.95
130	Industrial Park	1,000 SF (Gross)	0.40	0%	\$869.97	\$1,542.19
140	Manufacturing	1,000 SF (Gross)	0.67	0%	\$1,457.20	\$2,583.17
150	Warehousing	1,000 SF (Gross)	0.19	0%	\$413.24	\$732.54
151	Mini-Warehouse (Self-Storage)	Storage Units (100s)	1.95	0%	\$4,241.12	\$7,518.18
210	Single-Family Detached Housing	Dwelling Units	0.99	0%	\$2,153.18	\$3,816.92
220	Multifamily Housing (Low-Rise)	Dwelling Units	0.56	0%	\$1,217.96	\$2,159.07
221	Multifamily Housing (Mid-Rise)	Dwelling Units	0.44	0%	\$956.97	\$1,696.41
251	Senior Adult Housing - Detached	Dwelling Units	0.30	0%	\$652.48	\$1,156.64
252	Senior Adult Housing - Attached	Dwelling Units	0.26	0%	\$565.48	\$1,002.42
254	Assisted Living	Beds	0.26	0%	\$565.48	\$1,002.42
310	Hotel	Rooms	0.60	0%	\$1,304.96	\$2,313.28
492	Health/Fitness Club	1,000 SF (Gross)	3.45	0%	\$7,503.52	\$13,301.39
520	Elementary School	Students	0.17	0%	\$369.74	\$655.43
522	Middle School/Junior High School	Students	0.17	0%	\$369.74	\$655.43
530	High School	Students	0.14	0%	\$304.49	\$539.77
534	Private School (K-8)	Students	0.26	0%	\$565.48	\$1,002.42
536	Private School (K-12)	Students	0.17	0%	\$369.74	\$655.43
560	Church	1,000 SF (Gross)	0.49	0%	\$1,065.72	\$1,889.18
565	Day Care Center	1,000 SF (Gross)	11.12	0%	\$24,185.25	\$42,872.88
610	Hospital	1,000 SF (Gross)	0.97	0%	\$2,109.68	\$3,739.81
620	Nursing Home	1,000 SF (Gross)	0.59	0%	\$1,283.21	\$2,274.73
630	Clinic	1,000 SF (Gross)	3.28	0%	\$7,133.78	\$12,645.96
710	General Office Building	1,000 SF (Gross)	1.15	0%	\$2,501.17	\$4,433.80
720	Medical-Dental Office Building	1,000 SF (Gross)	3.46	0%	\$7,525.27	\$13,339.94
770	Business Park (Flex Space)	1,000 SF (Gross)	0.42	0%	\$913.47	\$1,619.30
817	Nursery (Garden Center)	1,000 SF (Gross)	6.94	0%	\$15,094.03	\$26,756.99
820	Shopping Center (General Retail)	1,000 SF (Gross)	3.81	34%	\$3,609.60	\$6,398.68
850	Supermarket	1,000 SF (Gross)	9.24	34%	\$8,753.98	\$15,518.07
853	Convenience Market with Gasoline Pumps	1,000 SF (Gross)	49.29	56%	\$20,754.39	\$36,791.03
912	Drive-in Bank	1,000 SF (Gross)	20.45	35%	\$18,791.69	\$33,311.78

ITE Code	ITE Land Use	Unit	ITE Daily Trip Rate	Pass-By	Basin Area Impact Fee	East Area Impact Fee
931	Quality Restaurant	1,000 SF (Gross)	7.8	44%	\$5,320.06	\$9,430.80
932	High-Turnover (Sit-Down) Restaurant	1,000 SF (Gross)	9.77	43%	\$6,903.83	\$12,238.33
933	Fast-Food Restaurant without Drive-Through Window	1,000 SF (Gross)	28.34	43%	\$20,026.05	\$35,499.92
934	Fast-Food Restaurant with Drive-Through Window	1,000 SF (Gross)	32.67	50%	\$17,763.76	\$31,489.59
945	Gasoline/Service Station with Convenience Market	Fueling Positions	13.99	56%	\$5,890.73	\$10,442.41
948	Automated Car Wash	1,000 SF (Gross)	14.2	56%	\$5,979.15	\$10,599.16
960	Super Convenience Market/Gas Station	Fueling Positions	22.96	56%	\$9,667.70	\$17,137.80

If there is a use that is not on the list provided above, the County will use the latest version of ITE Trip Generation Manual for the PM Peak Trip Rate to calculate an appropriate fee.

Utah Code Legal Requirements

Utah law requires that communities prepare an Impact Fee Analysis (IFA) before enacting an impact fee. Utah law also requires that communities give notice of their intent to prepare and adopt an IFA. This IFA follows all legal requirements as outlined below. The County has retained Zions Public Finance Inc., to prepare this Impact Fee Analysis in accordance with legal requirements.

Notice of Intent to Prepare Impact Fee Analysis

A local political subdivision must provide written notice of its intent to prepare an IFA before preparing the Plan (Utah Code §11-36a-503). This notice must be posted on the Utah Public Notice website. The County has complied with this noticing requirement for the IFA.

Preparation of Impact Fee Analysis

Utah Code requires that each local political subdivision, before imposing an impact fee, prepare an impact fee analysis. (Utah Code 11-36a-304).

Section 11-36a-304 of the Utah Code outlines the requirements of an impact fee analysis as follows:

- (1) An impact fee analysis shall:
 - (a) identify the anticipated impact on or consumption of any existing capacity of a public facility by the anticipated development activity;
 - (b) identify the anticipated impact on system improvements required by the anticipated development activity to maintain the established level of service for each public facility;
 - (c) demonstrate how the anticipated impacts described in Subsections (1)(a) and (b) are reasonably related to the anticipated development activity;
 - (d) estimate the proportionate share of:
 - (i) the costs for existing capacity that will be recouped; and
 - (ii) the costs of impacts on system improvements that are reasonably related to the new development activity; and
 - (e) identify how the impact fee was calculated.
- (2) In analyzing whether or not the proportionate share of the costs of public facilities are reasonably related to the new development activity, the local political subdivision or private entity, as the case may be, shall identify, if applicable:
 - (a) the cost of each existing public facility that has excess capacity to serve the anticipated development resulting from the new development activity;
 - (b) the cost of system improvements for each public facility;
 - (c) other than impact fees, the manner of financing for each public facility, such as user charges, special assessments, bonded indebtedness, general taxes, or federal grants;

- (d) the relative extent to which development activity will contribute to financing the excess capacity of and system improvements for each existing public facility, by such means as user charges, special assessments, or payment from the proceeds of general taxes;
- (e) the relative extent to which development activity will contribute to the cost of existing public facilities and system improvements in the future;
- (f) the extent to which the development activity is entitled to a credit against impact fees because the development activity will dedicate system improvements or public facilities that will offset the demand for system improvements, inside or outside the proposed development;
- (g) extraordinary costs, if any, in servicing the newly-developed properties; and
- (h) the time-price differential inherent in fair comparisons of amounts paid at different times.

Certification of Impact Fee Analysis

Utah Code states that an Impact Fee Analysis shall include a written certification from the person or entity that prepares the Impact Fee Analysis. This certification is included at the conclusion of this analysis.

Anticipated Impact on or Consumption of Any Existing Capacity of a Public Facility by the Anticipated Development Activity

Utah Code 11-36a-304(1)(a)

Consumption of Existing Capacity

Development activity in Summit County is based on both residential and nonresidential growth. Growth projections are then used by the County's engineers to identify the new facilities needed due to the demands of new growth. Growth projections are as follows:

TABLE 4: GROWTH PROJECTIONS

	Basin Area	East Area
Growth in PM Peak Trips, 2020-2030	5,197	622

Source: Hales Engineering, Summit County Transportation Impact Fee Facilities Plan

The County has identified excess capacity in the existing County-owned roads for which impact fees could be charged as a "buy-in" component. The following table shows the total "buy-in" amount for existing capacity found in both service areas. These amounts were calculated based on the actual cost of construction and the remaining existing capacity for roads currently serving County residents. New development will be expected to "buy-in" to the existing capacity as listed below.

TABLE 5: EXISTING CAPACITY BUY-IN

Description	Basin Area	East Area
Buy-In to Excess Capacity	\$2,009,423	\$744,825

Source: Summit County Engineering Department

Identify the Anticipated Impact on System Improvements Required by the Anticipated Development Activity to Maintain the Established Level of Service for Each Public Facility and Demonstrate How the Anticipated Impacts are Reasonably Related to the New Development Activity

Utah Code 11-36a-304(1)(b)(c)

Summit County's IFFP identifies a total of 20 projects necessitated by new development at a total cost of \$139,751,000. The engineers have allocated \$12,446,647 as the impact fee eligible cost based on the project type and volumes for roadway projects, and trail miles for trail projects. The engineers have carefully removed any costs associated with pass-through trips as these costs must be borne by the community as a whole.

TABLE 6: PROJECT COSTS

	#	Description	2030 Cost	Eligible Cost
Basin	B1	Extend Landmark Dr. from Olympic Pkwy to Bear Cub Dr. (2 Lanes)	\$7,568,000	\$885,456
	B2	New McCleod Creek/ Willow Creek Loop/ East SR-224 Trail	\$105,000	\$75,810
	B3	New Bitner Rd. extension from Bitner Rd. to Silver Creek Rd. (2 Lanes)	\$16,623,000	\$1,090,291
	B4	New Old Ranch Rd. Sidepath	\$248,000	\$179,056
	B5	Widen Pace Frontage Rd. from Silver Creek Dr. to Park City Storage (3 Lanes)	\$3,755,000	\$1,445,675
	B6	Upgrade I-80 pedestrian/bike tunnel near Silver Creek Village with vehicle lanes (2 Lanes)	\$9,948,000	\$129,324
	B7	Upgrade Silver Creek Dr./Pace Frontage Rd. roundabout to dual-lane roundabout	\$6,469,000	\$1,209,703
	B8	New Silver Summit Pkwy Sidepath	\$144,000	\$103,968
	B9	Widen Silver Creek Dr. from Pace Frontage Rd. to Promontory Ranch Rd. (4 Lanes)	\$3,311,000	\$834,372
	B10	Upgrade Promontory Ranch Rd. / Silver Creek Dr. to Roundabout	\$2,165,000	\$660,325
	B11	Grade separation of Olympic Pkwy/Newpark Blvd at intersection with SR-224	\$27,094,000	\$1,679,828
	B12	Grade separation of Ute Blvd at intersection with SR-224	\$27,035,000	\$1,676,170
	B13	Realignment of Old Highway 40 at the intersection with SR-248	\$4,981,000	\$732,207
	B14	Widen Landmark Drive from Landmark Loop to Outlets Roundabout (4 Lanes)	\$1,742,000	\$94,068
Basin Subtotal			\$111,188,000	\$10,796,253
East	E1	New Blu Sky bridge to Rail Trail	\$38,000	\$27,436
	E2	New Hallam Road extension from SR-248 to Lambert Ln. (2 Lanes)	\$4,781,000	\$726,712
	E3	Pave Democrat Alley	\$4,775,000	\$57,300
	E4	New SR-32 Pathway	\$665,000	\$480,130
	E5	Add shoulder & improve intersections along Hoytsville Rd.	\$7,781,000	\$295,678
	E6	Widen Weber Canyon Rd. by adding turn lanes from Oakley to the end (3 Lanes)	\$10,523,000	\$63,138
East Subtotal			\$28,563,000	\$1,650,394
TOTAL			\$139,751,000	\$12,446,647

Source: Hales Engineering, Summit County Transportation Impact Fee Facilities Plan

The total cost of \$12,446,647 attributable to new development between 2020 and 2030 must be shared proportionately between the additional trips projected for that time period. PM peak trips are projected to grow by 5,197 trips in the Basin area and 622 trips in the East area over the 10-year period. The increased volume and capacity impacts need to be viewed as part of an overall system of roads.

Estimate the Proportionate Share of (i) the Costs for Existing Capacity That Will Be Recouped; and (ii) The Costs of Impacts on System Improvements That Are Reasonably Related to the New Development Activity; and Identify How the Impact Fee was Calculated

Utah Code 11-36a-304(1)(d)(e)

Existing Buy-In Cost Calculation

The County has identified excess capacity in the existing County-owned roads for which impact fees could be charged as a “buy-in” component. The proportionate cost per trip for new construction is \$386.65 in the Basin area and \$1,197.47 in the East area.

TABLE 7: PROPORTIONATE SHARE CALCULATION – EXISTING BUY-IN COST

Existing Buy-In	Basin Area	East Area
Existing Capacity Costs	\$2,009,423	\$744,825
Growth in PM Peak Trips, 2020-2030	5,197	622
Cost per Trip	\$386.65	\$1,197.47

New Construction Cost Calculation

In order to maintain its current service level, Summit County will need to construct additional facilities, as identified previously. The proportionate cost per trip for new construction is \$2,077.40 in the Basin area and \$2,653.37 in the East area.

TABLE 8: PROPORTIONATE SHARE CALCULATION – NEW CONSTRUCTION COST

New Construction	Basin Area	East Area
New Construction Costs	\$10,796,253	\$1,650,394
Growth in PM Peak Trips, 2020-2030	5,197	622
Cost per Trip	\$2,077.40	\$2,653.37

Consulting Cost Calculations

Utah law allows for the cost of developing the Impact Fee Facility Plan and Impact Fee Analysis to be included in the calculation of impact fees. These costs are then shared proportionately among the additional trips generated between 2020 and 2030.

TABLE 9: PROPORTIONATE SHARE CALCULATION – CONSULTING COSTS

Description	Amount
Hales Engineering	\$20,000
ZPFI	\$7,000
Growth in PM Peak Trips, 2020-2030	5,819
Cost per Trip	\$4.64

Summit County has a balance of \$1,526,664.92 in its transportation impact fee fund as of December 31, 2021. Therefore, the following credit needs to be made against the impact fee fund balance. According to the County, all previous impact fee funds were collected from the Basin area so credits will only be made in the Basin area.

TABLE 10: IMPACT FEE CREDIT CALCULATION

Description	Basin Area	East Area
Impact Fee Fund Balance	\$1,526,664.92	\$0
Growth in PM Peak Trips, 2020-2030	5,197	622
Credit per Trip	(\$293.76)	\$0

Summary of Impact Fees

TABLE 11: SUMMARY OF GROSS IMPACT FEE

Summary	Basin Area	East Area
Existing Buy-In	\$386.65	\$1,197.47
New Construction Cost	\$2,077.40	\$2,653.37
Consultant Costs	\$4.64	\$4.64
Fund Balance	(\$293.76)	\$0.00
Gross Cost per Trip	\$2,174.93	\$3,855.47

The total cost per trip is then applied to the daily trips generated by various land use types. The more trips that are associated with a particular land use or development, the greater its impact on the street system.

TABLE 12: SUMMARY OF MAXIMUM IMPACT FEES

ITE Code	ITE Land Use	Unit	ITE Daily Trip Rate	Pass-By	Basin Area Impact Fee	East Area Impact Fee
110	General Light Industrial	1,000 SF (Gross)	0.63	0%	\$1,370.21	\$2,428.95
130	Industrial Park	1,000 SF (Gross)	0.40	0%	\$869.97	\$1,542.19
140	Manufacturing	1,000 SF (Gross)	0.67	0%	\$1,457.20	\$2,583.17
150	Warehousing	1,000 SF (Gross)	0.19	0%	\$413.24	\$732.54
151	Mini-Warehouse (Self-Storage)	Storage Units (100s)	1.95	0%	\$4,241.12	\$7,518.18
210	Single-Family Detached Housing	Dwelling Units	0.99	0%	\$2,153.18	\$3,816.92
220	Multifamily Housing (Low-Rise)	Dwelling Units	0.56	0%	\$1,217.96	\$2,159.07
221	Multifamily Housing (Mid-Rise)	Dwelling Units	0.44	0%	\$956.97	\$1,696.41
251	Senior Adult Housing - Detached	Dwelling Units	0.30	0%	\$652.48	\$1,156.64
252	Senior Adult Housing - Attached	Dwelling Units	0.26	0%	\$565.48	\$1,002.42
254	Assisted Living	Beds	0.26	0%	\$565.48	\$1,002.42

ITE Code	ITE Land Use	Unit	ITE Daily Trip Rate	Pass-By	Basin Area Impact Fee	East Area Impact Fee
310	Hotel	Rooms	0.60	0%	\$1,304.96	\$2,313.28
492	Health/Fitness Club	1,000 SF (Gross)	3.45	0%	\$7,503.52	\$13,301.39
520	Elementary School	Students	0.17	0%	\$369.74	\$655.43
522	Middle School/Junior High School	Students	0.17	0%	\$369.74	\$655.43
530	High School	Students	0.14	0%	\$304.49	\$539.77
534	Private School (K-8)	Students	0.26	0%	\$565.48	\$1,002.42
536	Private School (K-12)	Students	0.17	0%	\$369.74	\$655.43
560	Church	1,000 SF (Gross)	0.49	0%	\$1,065.72	\$1,889.18
565	Day Care Center	1,000 SF (Gross)	11.12	0%	\$24,185.25	\$42,872.88
610	Hospital	1,000 SF (Gross)	0.97	0%	\$2,109.68	\$3,739.81
620	Nursing Home	1,000 SF (Gross)	0.59	0%	\$1,283.21	\$2,274.73
630	Clinic	1,000 SF (Gross)	3.28	0%	\$7,133.78	\$12,645.96
710	General Office Building	1,000 SF (Gross)	1.15	0%	\$2,501.17	\$4,433.80
720	Medical-Dental Office Building	1,000 SF (Gross)	3.46	0%	\$7,525.27	\$13,339.94
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817	Nursery (Garden Center)	1,000 SF (Gross)	6.94	0%	\$15,094.03	\$26,756.99
820	Shopping Center (General Retail)	1,000 SF (Gross)	3.81	34%	\$3,609.60	\$6,398.68
850	Supermarket	1,000 SF (Gross)	9.24	34%	\$8,753.98	\$15,518.07
853	Convenience Market with Gasoline Pumps	1,000 SF (Gross)	49.29	56%	\$20,754.39	\$36,791.03
912	Drive-in Bank	1,000 SF (Gross)	20.45	35%	\$18,791.69	\$33,311.78
931	Quality Restaurant	1,000 SF (Gross)	7.8	44%	\$5,320.06	\$9,430.80
932	High-Turnover (Sit-Down) Restaurant	1,000 SF (Gross)	9.77	43%	\$6,903.83	\$12,238.33
933	Fast-Food Restaurant without Drive-Through Window	1,000 SF (Gross)	28.34	43%	\$20,026.05	\$35,499.92
934	Fast-Food Restaurant with Drive-Through Window	1,000 SF (Gross)	32.67	50%	\$17,763.76	\$31,489.59
945	Gasoline/Service Station with Convenience Market	Fueling Positions	13.99	56%	\$5,890.73	\$10,442.41
948	Automated Car Wash	1,000 SF (Gross)	14.2	56%	\$5,979.15	\$10,599.16
960	Super Convenience Market/Gas Station	Fueling Positions	22.96	56%	\$9,667.70	\$17,137.80

If there is a use that is not on the list provided above, the County will use the latest version of ITE Trip Generation Manual for the PM Peak Trip Rate to calculate an appropriate fee.

Calculation of Credits

The County may choose to credit certain development types, including affordable housing, but these credits are at the discretion of the County. Further, a County may choose to allow a developer to put in a transportation facility listed in the IFFP and reduce impact fees accordingly. Again, this is at the discretion of the County.

Certification

Zions Public Finance, Inc. certifies that the attached impact fee analysis:

1. Includes only the costs of public facilities that are:
 - a. allowed under the Impact Fees Act; and
 - b. actually incurred; or
 - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. Does not include:
 - a. costs of operation and maintenance of public facilities;
 - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents; or
3. Offsets costs with grants or other alternate sources of payment; and
4. Complies in each and every relevant respect with the Impact Fees Act.

Council Agenda Item Report

Meeting Date: May 5, 2022

Submitted by: Michelle Kellogg

Submitting Department: Public Utilities

Item Type: Staff Report

Agenda Section: COMMUNICATIONS AND DISCLOSURES FROM
COUNCIL AND STAFF

Subject:

Water Outlook 2022

Suggested Action:

Attachments:

[Water Outlook 2022 Staff Report](#)

[Exhibit A: Conservation Program Infographic](#)

City Council Staff Communications Report

Subject: Water Outlook 2022
Author: Jason Christensen, Water Resources Manager
Department: Public Utilities
Date: May 5, 2022
Type of Item: Informational

Park City has experienced a below average winter in terms of precipitation, as has most of the State and entire Mountain West. Local snowpack is slightly higher than to 2021, and soil moisture content is much higher than in 2021 due to late 2021 rain and early snow. Overall, the current water supply condition for Park City is marginally better than this same time in 2021. We anticipate conducting a similar comprehensive program of overall water conservation messaging as last year and will request that, where possible, outdoor irrigation be limited to twice per week.

Our partner, [Weber Basin Water Conservancy District](#), is experiencing a much different situation. Most of the water Weber Basin provides comes from snowmelt runoff that is collected and stored in their many large reservoirs such as Rockport and Echo. Weber Basin's reservoirs are low due to several years of below average snowpack, low soil moisture, and runoff coupled with high water demand from wholesale and retail customers. While Weber Basin is correcting this, many of Weber Basin's retail customers have unmetered irrigation connections making it impossible to know how much water is being consumed. Weber Basin has recently adopted a "severe" drought condition under its drought contingency plan, which requires dramatic reductions in water use.

Weber Basin bases their level of drought declaration on the projected water storage that will be available on June 1st each year. With a "severe" level of drought, their main focus is to reduce demand this year in order to ensure there is enough water remaining in storage to provide drinking water next year should we have another low snow year. Under the current Weber Basin drought designation, Park City's wholesale contract will be reduced by 20 to 30 percent. This will have a negligible impact on our overall water supply.

Fortunately, the City has proactively prepared for periods of drought both through our physical infrastructure and through our conservation program. To account for the annual reduction in the Weber Basin source, we will shift demand onto local water sources such as our wells and request that, where possible, outdoor irrigation be limited to twice per week. As a result of our drought messaging last year, the community responded with a 120 million gallon reduction in water use and we expect similar reductions this year, if not more. These two actions should address the reduction in our wholesale contract.

Our physical infrastructure also includes eight water sources the community can draw on to meet water demands. During the construction of the 3Kings Water Treatment Plant, investments have been made in the Creekside and Quinn's Junction Water Treatment Plants to mitigate the impact of the demolition of the Spiro Water Treatment

plant and provide additional system redundancy. Once 3Kings is operational, our water system will be even more diversified and resilient with this new state of the art facility.

Our Conservation program continues to be robust and among the most progressive in the State of Utah. A summary of the active elements of this program is attached to this staff communications report. Since the year 2000, residential, multi-family, and irrigation account water usage has decreased by approximately 50% per connection due to our collective efforts.

Drought restrictions are governed by Park City Municipal PCMC 13-1-26 “Water Use During Periods of Drought.” That code contains three stages of drought action items. The first stage is triggered when demand exceeds 85% of water supply. If all water sources remain online, the chance of a drought declaration is low, although it remains a valuable tool and available if needed. In Park City’s system, the ratio of supply to demand is typically highest July through early September making this the most likely period for a drought declaration. During 2021, the highest supply to demand ratio reached was only 70%.

While a Park City initiated drought declaration remains available, the investments in physical infrastructure and the ongoing conservation ethic of Park City reduce the chances of such a declaration, at least in the near term.

Public Utilities staff is partnering with the Community Engagement team to enhance our comprehensive outreach campaign targeting residents, businesses, HOAs, and other key stakeholders. This outreach plan includes a series of water conservation public service announcements to be featured on the City’s social media and other communication platforms, including local media, the City’s newsletter, billing inserts, and a monthly water conservation email campaign. Messaging will be available in English and Spanish. Staff will also participate in programming opportunities such as the May 2, 2022 [water symposium](#), and will offer to speak at community and HOA meetings.

As we approach this irrigation season, we plan to actively remind and encourage the community to conserve:

- Log onto parkcity.watersmart.org to monitor your water usage, ensure you receive leak alerts, and set bill alerts if you are using more water.
- In the May 1, 2022, water bill, all customers will receive a billing insert referencing the State’s drought declaration, our snowpack levels, and the construction of the 3Kings Water Treatment Plant. This insert will ask residents to be mindful of their water consumption this year.
- Outdoor irrigation is only allowed between the hours of 7:00 p.m. and 10:00 a.m. between May 1–September 30 and, at most, every other day. It’s easy to find out when to plan outside watering. For example, if you live or work at an even-numbered address, water on even-numbered days. If your home or business is at an odd-numbered address, water on odd-numbered days. The Park City Water

Manager may make exceptions for new landscaping. Our team will be visiting neighborhoods and monitoring daytime water consumption to enhance compliance with this regulation.

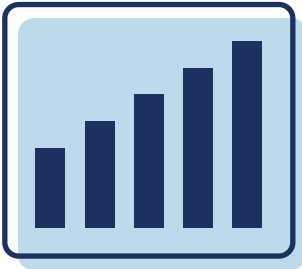
- In June, July, and August, all water customers will receive a water report, by mail or email, with individualized recommendations on actions that they can take to conserve water.

Exhibits

A Conservation Program Info Graphic

WATER CONSERVATION

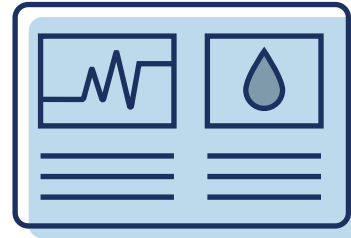
IN PARK CITY



WATER RATE STRUCTURE

Tier based water rates

Water pricing designed to discourage excessive water use

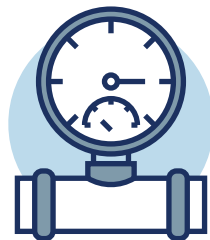


WATERSMART MAILER

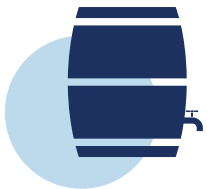
6x a year with recommendations to reduce water usage

WATER LOSS REDUCTION PROGRAM

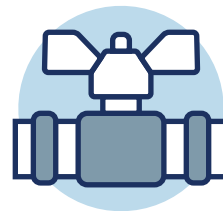
A target of less than 20% system loss by 2030



REBATES/INCENTIVES



Utahwatersavers.com
Slowtheflow.org
Rain Barrels



ONGOING RESTRICTIONS

Watering prohibited from 10:01 am – 6:59 pm.

Watering restricted to every other day at most.

Water Waste is prohibited.

WATERSMART WEBSITE



A customer's hourly consumption data.

A library of 140 conservation activities.



PARTNERSHIP WITH WEBER BASIN WATER CONSERVANCY DISTRICT

- Conservation Garden
- Classes

MEMBERSHIPS

Utah Water Conservation Forum
Alliance for Water Efficiency



LEAK ALERTS

Single Family and Irrigation Accounts

USAGE ALERTS

Available for all account types.



Council Agenda Item Report

Meeting Date: May 5, 2022

Submitted by: Michelle Kellogg

Submitting Department: Executive

Item Type: Staff Report

Agenda Section: CONSIDERATION OF MINUTES

Subject:

Consideration to Approve the City Council Meeting Minutes from April 7, 2022

Suggested Action:

Attachments:

[April 7, 2022 Minutes](#)



PARK CITY COUNCIL MEETING MINUTES - DRAFT
445 MARSAC AVENUE
PARK CITY, SUMMIT COUNTY, UTAH 84060

April 7, 2022

The Council of Park City, Summit County, Utah, met in open meeting on April 7, 2022, at 1:30 p.m. in the City Council Chambers.

Council Member Dickey moved to close the meeting to discuss property and security at 1:32 p.m. Council Member Toly seconded the motion.

RESULT: APPROVED

AYES: Council Members Dickey, Doilney, Gerber, Rubell, and Toly

CLOSED SESSION

Council Member Gerber moved to adjourn from Closed Meeting at 2:45 p.m. Council Member Rubell seconded the motion.

RESULT: APPROVED

AYES: Council Members Dickey, Doilney, Gerber, Rubell, and Toly

WORK SESSION

Discuss Special Events:

Jenny Diersen, Special Events Manager, and Jon Weidenhamer, Economic Development Manager, presented this item. Diersen reviewed the history regarding events in the City. She talked about special event philosophies of some other resort towns. She asked Council what their goals were, if events should be scaled back, and what role the City should have in producing events. She also proposed eliminating language in the code that required events to have economic benefit, adding additional peak time periods where new events would not be considered, and adding more quiet time days on the Special Events Calendar. Weidenhamer stated in 2018 staff identified quantifiable elements regarding events. He talked about defining standards for permit approvals in the code.

Diersen hoped to align the fee waiver process, update the deadlines, and review process in the next six months. Some big changes could be a full reset of events with no new Levels Four or Five without a City services contract. Weidenhamer stated the reset would not guarantee a spot for the current big events.

1 Council Member Toly thought some events wouldn't have the same impact if they were
2 held in alternate locations. Diersen stated events at Deer Valley had less impacts to the
3 City, but they were still impactful. Council Member Toly asked if some events would
4 leave if the City didn't give them fee waivers. Diersen indicated some events could not
5 stand on their own, but they had been told this was coming for a while and some were
6 working on other solutions. Some events, such as Fourth of July and Car-Free Sunday,
7 were expensive and the City had taken on those costs. Council Member Toly asked if
8 multi-day events had the same impact as single day events scheduled over multiple
9 days. Diersen indicated the cumulative events took a toll on staff and the residents.

10
11 Council Member Dickey asked if any events had a right to be in Park City. Diersen
12 stated Arts Fest and Sundance had City service contracts. Every event had to be
13 approved every year. With regard to a reset, she suggested staff and Council could go
14 through the calendar and analyze the event compared to the City goals. Mayor Worel
15 asked if the event calendar showed all the events for 2022. Diersen stated if the quiet
16 times were codified, no Levels Three through Five events could apply for those times.

17
18 What are Council's goals for Special Events? Does Council agree that the role of
19 Special Events should be scaled further to community and resident benefit over
20 economic? How aggressively?

21
22 Council Member Doilney stated Council had discussed events for a long time. He didn't
23 want to have the same events for years to come. He thought events needed to be
24 limited and thought staff did a great job finding a balance. He liked seeing mid-week
25 events since the City was impacted with events most weekends. He liked seeing the
26 goodwill events that were community focused and he hoped to see more of those. He
27 referred to the Youth Sports Alliance Olympic parade and thought the City was on the
28 right track with community-first events.

29
30 Council Member Toly stated events like Sundance were controlled compared to skiers
31 in town, in which cars would be going to different places. She also stated events were
32 going on at the County or Basin even if the City was not holding events. She thought it
33 would be nice to coordinate between entities so there was a holistic view of what was
34 going on. Events were how small businesses survived over the years. If an event was
35 removed, the City needed to be sure it could be replaced. She thought there was a
36 balance between community events and economic benefit. Weidenhamer asked if
37 economic benefit should be removed from the code. Council Member Toly wanted to
38 see culture remain and didn't mind if the economic benefit requirement was removed.
39 She favored having fewer fee waivers and wanted more community-focused events.

40
41 Council Member Gerber thought the City was heading in the right direction. She
42 supported having community-first events and didn't think the City needed events that
43 just wanted a Park City backdrop. She was not worried about cost recovery on events.

1 She favored having more peak days and quiet times. She liked having the one-off
2 events and wanted staff to consider those when trying to implement the peak days and
3 quiet times. She didn't think the City needed a full reset at this time. She favored the
4 City producing events like Miners' Day. She wondered if grants could be found for Car-
5 Free Sunday which focused on taking cars off streets.

6
7 Council Member Dickey liked the community-first events and supported taking out
8 economic benefit from the criteria. He noted event fatigue was focused on Main Street
9 and he liked the idea of spreading events around to other locations. He supported
10 eliminating fee waivers. He liked having the peak times and quiet times codified. He
11 thought a full reset seemed dramatic, but if the tweaks didn't change the amount or
12 types of events, then he supported it. He suggested simulating a full reset to see what
13 would be gained and lost. Regarding the Level One and Two events, he thought
14 location was key for residents not to feel the impacts. Council Member Gerber noted the
15 races at Round Valley were Level One and Two events and they had a big impact to
16 others using the trail.

17
18 Council Member Rubell agreed community-first events should take priority and that
19 could be a lens to look through when determining administrative decision making or
20 Council decision making. He favored cost recovery except for goodwill events. He
21 wanted to see an intermediate scaling of events for now, but he wasn't opposed to a full
22 reset. He hoped to see quiet times during the winter as well. He thought staff needed to
23 control the rogue events. He supported City produced events if it promoted community
24 goodwill.

25
26 Diersen asked if Council wanted to discuss the Bonanza Art Park events at a future
27 meeting. Council Members Doilney and Gerber supported that discussion. Council
28 Member Toly noted it needed to be changed from last year in order for her to support it.
29 Council Member Dickey was open to talking about it. Council Member Rubell was willing
30 to talk about it but did not like the cost from the activation last year. He asked that it
31 come back with attendance expectations and cost estimates. He also indicated Level
32 Three events should not happen on weekends and the City should not be relying on
33 trailing statistics in decision making. Diersen asked if Council Member Rubell meant
34 new Level Three events coming in on the peak times or any events coming in. Council
35 Member Rubell clarified he referred to the redlines on Levels One through Three
36 Events. Weidenhamer summarized Council didn't want small events in the downtown
37 area, but they were open to having those events in other areas.

38
39 Council Member Dickey stated Rotary could not manage the Miners' Day event alone
40 and had asked for City support. Diersen indicated staff could bring back a proposal on
41 what that event would look like in the future.
42

Weidenhamer indicated the pending applications were analyzed based on the current code, but these proposals would be brought back as code amendments and would affect those applying for events in the future. Mayor Worel stated she had asked for economic benefit measurements since 2016 and she was happy that it would be removed from the code since there were no direct measurements.

Continued Park City Housing Program Discussion Covering the Housing

Authority and Strategies/Programs Sections:

Jason Glidden and Elyse Kats, Affordable Housing Department, presented this item. Housing Authority: Kats reviewed the history of this entity since it was established in 1978. Council Member Gerber asked if it could be a taxing entity, to which Glidden indicated he would look into that. Kats noted Council's direction to look at having a regional housing authority. She compared over 30 housing authorities and highlighted three: Salt Lake County, Utah; Blaine County, Idaho; and Aspen-Pitkin County, Colorado. Mayor Worel asked if Blaine County developed potential housing projects or developed fundraising, to which Kats affirmed it was the development of housing projects. Council Member Gerber asked if the budget was operating or capital, to which Kats stated it was operating.

Kats listed the pros of separating the housing authority, including having expertise in the field, the ability to act quickly, greater opportunities for regional collaboration, increased operation efficiency, and being inoculated from politics of the issues. Some cons included having a reduced amount of control, funds being spent outside City limits, and increased benefits to other jurisdictions. She hoped to return for a more in-depth discussion. Mayor Worel stated the County Council and City Council wanted a joint discussion and asked if funding, laws, bylaws, budget and a phasing plan could be presented at the next joint meeting. Glidden stated he could talk about context and history for the Councils to think about.

Strategies/Programs: Kats reviewed some programs that could be implemented in the City, including a life deed restriction program. She asked if Council wanted an affordability component added to this program when it returned to Council. She proposed a scaling deed restriction program and offered a higher ratio for stronger deed restrictions. Council Member Gerber was okay with the proposal, but felt the most important thing was having a board review the applications on a case-by-case basis. Council Member Dickey supported the pilot, but did not favor adding the affordability component. He thought staff would learn from the program. Council Member Rubell did not support the affordability component and thought that was a different program. He stated a successful program was taken and then the parameters were changed. He wanted to copy a program that worked or create a program that would accomplish what the Council directed. He asked how successful the program was today in other cities compared to years ago, especially with today's prices.

1 Council Member Toly thought there was an opportunity to work with businesses that
2 wanted to buy a home for several employees. She wanted to start the pilot and see the
3 results. Council Member Doilney did not support the affordability component and
4 wanted to implement the proposed pilot as-is. Council Member Gerber changed her
5 vote to just being as proposed.

6
7 Kats stated this program was not the same as other entities. Glidden indicated they
8 would present all the program options and then based on the priority given by Council,
9 staff would come back to discuss them in depth. Council Member Doilney was
10 comfortable with direction given at the previous meeting. Council Member Rubell stated
11 the previous program worked in other cities and he wanted the City to try it without
12 tailoring it. Council Member Dickey agreed with Council Member Rubell and stated that
13 was why it was a pilot. Council Member Gerber asked staff to bring this proposal back
14 to show what was changed. Council Member Toly requested the employment aspect
15 defined. She expressed concern that this housing would go for Zoom employees and
16 not local employees. Council Member Gerber stated that was not the intent of the
17 original program.

18
19 Kats explained the Buy Down Program, where the City would buy a home at market
20 value and would sell it at an affordable rate. It would be resold with a deed restriction on
21 the property. The Rent to Own Program was when the City would purchase the home
22 and the renter would contribute one to two percent of the purchase price as a home
23 savings fund. Each month, a portion of the rent would go to the fund and in three years
24 the renter would have enough in the fund for a down payment.

25
26 Kats reviewed the Shared Equity Program, where the City would contribute a portion of
27 the home's purchase price. Upon the sale of the home, the City would receive a ratio of
28 the portion of the appreciation in the value of the home. Council Member Rubell clarified
29 shared equity had nothing to do with fractional ownership and was for fulltime residents.
30 Council Member Toly asked who would monitor the real estate market. Kats stated this
31 could be implemented as a pilot and if it took too much time, it could be reevaluated.

32
33 Kats explained the City Build and Sell Model where the City would act as the developer
34 and develop for-sale units. She also reviewed Public/Private Partnerships and stated
35 the City was currently using this program with the Homestake Housing Project. Council
36 Member Gerber thought this was a good deal up front but there was a cost when the
37 developer sold the units or when the units needed to be updated. Erik Daenitz,
38 Assistant Budget Director, stated the parameters were project specific so there was no
39 normal project.

40
41 Council Member Toly asked if any other ski towns utilized any of the above-mentioned
42 programs. Kats indicated many communities used the buy down program. The rent to
43 own program was often used in lower priced communities. Council Member Toly asked

1 if the City looked at regional partnerships such as partnering with Summit County on
2 housing projects. Glidden stated partnerships could be with other entities, but they
3 worked well with those who had expertise in housing. Council Member Doilney thought
4 it would be beneficial to have a regional housing authority, with members who weren't
5 leaving every few years. Council Member Gerber indicated the City goal was to build
6 within City limits and then it would be open to other opportunities as they presented
7 themselves. The County didn't have a housing fund and did not want to be a developer,
8 but they could participate with land.

9
10 Daenitz reviewed that when Council allocated finite or expanding resources, staff tried
11 to find programs that were the most cost effective. He displayed an interactive Relative
12 Value Housing Strategy Analysis. He thought this could lead to a recommendation that
13 the public/private partnership program was the most efficient strategy. Glidden noted
14 once programs were prioritized, then funds could be allocated to the analysis model for
15 optimal budgeting. Daenitz indicated this analysis would help Council know how much
16 the City could get out of each program.

17
18 Council Member Toly asked why Daenitz estimated 12 units for the lite deed restriction
19 program per year. Daenitz indicated that was an estimate. Council Member Rubell
20 stated it was also limited by the funding. Mayor Worel asked for the Council's top three
21 priorities.

22
23 Council Member Rubell listed public/private partnerships and a buy down option as part
24 of the public/private partnership, a rental assistance program, and the shared equity
25 program with an affordability component, which he felt was a better choice than the lite
26 deed restriction. Council Member Dickey shared similar thoughts and stated shared
27 equity and rent to own had a functioning marketplace in the private sector so he would
28 deprioritize those.

29
30 Council Member Gerber favored public/private partnerships and she hoped it would
31 work with nonprofits in a way so any profits made would come back to the community.
32 She preferred having the City maintain ownership. She also favored lite deed and the
33 buy down program. There was opportunity with all the options and she hoped these
34 could all be possibilities if an opportunity arose.

35
36 Council Member Toly favored public/private partnerships, but before investing in that,
37 she suggested the City could do something with buildings already in town, whether
38 through lite deed or other programs, using existing inventory to turn nightly rentals into
39 long-term rentals.

40
41 Council Member Doilney looked for return-on-investment with looking for units. He
42 favored public/private partnerships in terms of building. He liked deed restrictions
43 because it was difficult to manage partnerships, and thought shared equity was worth

exploring. He noted the build and sell program was successful to a certain extent, but the pace was too difficult to maintain. Council Member Gerber thought the City having the ability to build and sell would make sense as well.

Arts and Culture District Discussion:

David Everitt, Deputy City Manager, presented this item with Betsy Wallace, Sundance Institute, and Aldy Milliken, Kimball Arts Center (KAC). Everitt reviewed this topic was discussed at length at the Council retreat. He reviewed a letter of intent (LOI) was signed between PCMC, Sundance, and KAC. There were terms for the City, including being responsible for dealing with the environmental site remediation, the partners would purchase their parcels for \$85.50 per square foot, PCMC would construct 60,000-90,000 square feet of additional arts district space, PCMC would construct underground parking and 400 parking stalls as well as a Transit hub, and would maintain all parking. He asked if Council was committed to building a cultural district. He thought this was an opportunity to focus with the City's partners on what the vision of an arts district would be.

Milliken reminded Council the property was a key gateway to the City. The goals in the original document were to offer culture to diverse groups, diversify from being a ski industry, help residents have a place to work and play, and for the partnership to work together to make complimentary buildings to have a dynamic cultural space. He felt there needed to be a recommitment to each other. It was his hope to rekindle the values of the original project. Wallace reviewed the process for the Sundance building and noted work was continuous until the pandemic hit in 2020. Now there was new Sundance, KAC, and PCMC leadership. She asked several questions with regard to the district: what was the primary purpose, was it still a priority, did the City remain committed to the original letters of intent, would the City commit to bring in a group to determine what would make the district sustainable, what resources would be necessary to operate and maintain the district, and more.

Milliken requested a confirmation that all entities were in agreement that they wanted to build this district under the agreement guidelines. He thought working with a nonprofit developer would be vital. He also wanted a development agreement between the entities.

Mayor Worel thought this was a good time to come back to the table to talk about moving forward. She asked Council what the vision was for the area. Council Member Doilney knew there were limitations such as soils mitigation, but he wanted to know if the Council wanted to partner and what parameters needed to be set. Council Member Toly stated the partners wanted a firm commitment on the LOI. She asked if there were areas of the LOI where there could be flexibility. Milliken stated it wasn't the appropriate place to negotiate parking, but they were committed to the vision of the LOI. There would be a conversation that would lead to a development agreement and that's what

1 he wanted to discuss. Wallace stated the vision of the project was important to
2 Sundance. They spent a lot of money on architects and attorneys. They hit roadblocks
3 and they wanted to negotiate and move forward.

4
5 Council Member Toly was committed to having a culture community project of some
6 kind. She supported having Sundance and KAC in that space, but did not support what
7 the previous Council approved.

8
9 Council Member Dickey stated at the retreat, culture was deprioritized to some extent
10 for other priorities such as transportation. He was committed to the project and would
11 like to see it move forward as the original vision. He thought it needed to be focused in
12 intent, and he thought having housing onsite would create vibrancy to the district.

13
14 Council Member Rubell thought art was important and culture was important and he
15 favored having something in town committed to that purpose. He wanted an area plan
16 first and stated if projects kept moving forward without a comprehensive plan, the City
17 would regret it. He wasn't comfortable committing to the project without having a
18 neighborhood plan first. Council was moving forward with the Homestake housing
19 project in the area and they needed to be careful. He thought having an arts district
20 would be great, but he would be sensitive to the price tag. As Council got into the details
21 he would know more.

22
23 Council Member Gerber was committed to seeing this project through. When she first
24 came to Council, the arts groups came to Council and stated the City supported sports
25 and it needed to support arts as well. She reviewed Mark Fischer offered to sell the land
26 to the City and hoped it would be a center for the City, Sundance and KAC. She was
27 willing to solve the problems and she wanted to put out an RFP to work with an outside
28 arts organization on this project. This was an opportunity to create a locals part of town.
29 She knew it would be an expensive project, but she wanted to develop a high-quality
30 project.

31
32 Council Member Doilney supported an arts and culture district and agreed housing
33 should be a component. He agreed with Council Member Rubell that having too many
34 owners planning it would be difficult, but he was willing to issue an RFP to have a group
35 propose ideas. He thought a development agreement was critical so all partners would
36 be locked in. He wanted to uphold the City's commitment and he wanted to see
37 transparency from all entities with regard to their ideas. He noted even though this
38 wasn't the City's top priority, it was key to having a complete community.

39
40 Mayor Worel believed this was important to building community. She agreed there
41 needed to be master planning. She asked what Art Space or a similar nonprofit could
42 do. Milliken stated they were trying to achieve a small area plan. They needed an
43 agreement so they could have the discussion of what would be created on the 5.5 acre

parcel. Art Space or a similar organization would take a project from the feasibility stage to the operational stage and would focus on arts. Having them would mean there was an advocate for culture leading this project. They were developers and they could bring financing to the table. With regard to affordable housing, he thought it would be great for arts employees to live on the parcel where they worked.

Wallace stated when the project started in 2017, the Sundance building was priced out and now with the economic and cost changes, she needed to reevaluate the cost. She liked having a housing component. She thought the parties needed to step back and see if this was feasible. She also hoped the bigger area would have room to breathe art.

Council Member Toly indicated the transportation component of the project was lost and she hoped to change the format of that intersection. Everitt noted when the transportation component was suggested, it had not been analyzed. After the analysis, staff figured out the best way to enhance transit. He wanted people to access the space from all different areas. Council Member Toly stated there were other nonprofits in town that were connected with art and culture, and she didn't want to say yes to some and no to other requests. She thought the City had room to figure out what would go on the property.

Council Member Rubell wanted to be careful about what should be accomplished with the RFP and he thought a group with an arts background would be helpful. He suggested carving out a section for arts and culture, but he didn't want to pigeonhole the entire area for that. He also wanted to look at public/private partnerships. He noted they had earmarked funding with the ability to fund for the remaining project amount. Everitt clarified the Transient Room Tax was designated for the Arts and Culture District. Council Member Rubell noted the Council could change what that went to if it chose.

Council Member Doilney stated there had to be some things that would get cut and Council needed to be disciplined in its focus for this project. Wallace asserted Art Space or another organization would analyze what it would take to make the project sustainable.

Mayor Worel proposed that she and a council member meet with Wallace and Milliken to discuss next steps. Milliken and Wallace agreed to future meetings.

REGULAR MEETING

I) ROLL CALL

Attendee Name	Status
Mayor Nann Worel	Present

Council Member Ryan Dickey Council Member Max Doilney Council Member Becca Gerber Council Member Jeremy Rubell Council Member Tana Toly Matt Dias, City Manager Margaret Plane, City Attorney Michelle Kellogg, City Recorder	
None	Absent

II) COMMUNICATIONS AND DISCLOSURES FROM COUNCIL AND STAFF

Council Questions and Comments:

Council Member Rubell indicated he attended the Fire District meeting and noted they would use the Mine Bench property while their new Silver Lake facility was constructed. They continued to have increased calls. He noted the Police Complaint Review Committee needed members and he encouraged the public to apply for openings on various City boards.

Council Member Gerber stated the Intergovernmental Panel on Climate Change (IPCC) came out with a new report and the population had eight years to cut carbon emissions in half. She stated efforts had been made in the City to reduce carbon emissions and she hoped efforts would continue to curb climate change. She also noted she attended the Youth Sports Hall of Fame and her high school swim coach was inducted.

Council Member Toly stated the Youth Sports Alliance (YSA) parade was great. The future Olympians were in a room with current Olympians. She went on the ski mine tour and looked at all the mines on Park City Mountain Resort (PCMR). She attended the Women in Leadership Project meeting and they discussed what it meant to be a woman in a leadership role. Utah ranked 50th in the U.S. with women in leadership and 17% of women were in government leadership. She also reminded people some trails were fragile and to please use trail etiquette.

Council Member Doilney noted the rain barrel program was detailed in the staff communication report. He added this wouldn't change the world, but every bit helped.

Mayor Worel reiterated there were several boards with openings and she stated being on a board was a great way to learn about the community and give back. She also indicated she would also have another open office hours session on Monday.

Staff Communications Reports:

1. Rain Barrels Available:

2. Prospector Park Playground Equipment Replacement:

3. Wildfire Outlook, Updates, and Current Initiatives:

Council Member Rubell encouraged the community to read the report. He indicated the community was in a severe draught and it could get worse. An above normal fire risk was also forecasted. He urged Council to support efforts with wildfire mitigation and he didn't want to wait a year for a plan to be created.

III) PUBLIC INPUT (ANY MATTER OF CITY BUSINESS NOT SCHEDULED ON THE AGENDA)

Mayor Worel opened the meeting for any who wished to speak or submit comments on items not on the agenda.

Hillary Gilson, Director of Kimball Arts Center, stated the Arts Fest event was important to the community and this year would mark its 53rd year. She noted festival attendees were impressed with art, dance, and other activities within the festival. She stated the fees given by the City were essential to making the event a success. She asserted the money was returned to the City in the form of tax revenue. She thanked the City for supporting this event.

Chloe Tarell and Bailey Carmack, liaisons for the Children's Justice Center, wanted to bring awareness of child abuse in the community. They explained the process when children reported maltreatment and asserted adults were obligated to report such incidents. They read a proposed proclamation for Child Abuse Prevention Month. Mayor Worel noted this would be on the April 28th Council agenda and action would be taken.

Clive Bush via eComment: "As a Hillside Avenue resident I was saddened to see today's staff report regarding the water main replacement project that's due to start in 10 days without notice being provided to stakeholders as noted in the staff report that should have already occurred but has not. There's a reference to downhill traffic being detoured to alternative routes but no details provided - having spent a great deal of time preserving the sanctity of Southern Old Town from traffic using Hillside as a shortcut (including Chambers, and Prospect) we must require this detour route not reverse this hard fought concession to the community by temporary re-routing or any other means of a detour through our neighborhood streets when a more suitable and purpose built access road to Silver Lake already exists. Planning of this detour, with construction traffic is no mean task and must already be in its advanced stages and yet your residents are once again left in the dark and the last to know what is likely to impact them this summer. I would add that given the volume of traffic on this road your plans for signage are insufficient and physical barriers and quite possibly significant police

presence will be required to keep everything in check - A road closure for downhill traffic at Wheaton Way would not be out of the question in my opinion - make sure you tell google, etc!"

Mayor Worel closed the public input portion of the meeting.

IV) CONSIDERATION OF MINUTES

1. Consideration to Approve the City Council Meeting Minutes from March 17, 2022:

Council Member Rubell referred to Page Four, Line Three, and requested the wording "as applied to the housing obligation calculations" be added after "... used as workforce housing."

Council Member Doilney moved to approve the City Council meeting minutes from March 17, 2022 as amended. Council Member Gerber seconded the motion.

RESULT: APPROVED AS AMENDED

AYES: Council Members Dickey, Doilney, Gerber, Rubell, and Toly

V) CONSENT AGENDA

1. Request to Authorize the City Manager to Execute the Second Addendum to the Professional Services Agreement, in a Form Approved by the City Attorney, with Lithos Engineering Inc., for the Spiro Mine Tunnel Reconstruction Project, Not to Exceed \$284,965:

2. Request to Authorize the City Manager to Execute a Design Professional Services Agreement, in a Form Approved by the City Attorney, with Bowen Collins & Associates, Inc, to Develop an Updated Water Master Plan and Impact Fee Analysis, in an Amount Not to Exceed \$176,000:

3. Request to Authorize the City Manager to Execute a Design Professional Services Agreement, in a Form Approved by the City Attorney, with Hazen & Sawyer, to Develop a Park City Public Utilities Strategic Asset Management Plan in an Amount Not to Exceed \$132,000:

Council Member Rubell moved to approve the Consent Agenda. Council Member Gerber seconded the motion.

RESULT: APPROVED

AYES: Council Members Dickey, Doilney, Gerber, Rubell, and Toly

VI) NEW BUSINESS

1. Administrative Infrastructure Discussion:

Employee Pay Plan: Luke Cartin, Compensation Committee member, noted the pay plan committee met and a blue-ribbon committee was formed to discuss the City's pay plan. He reviewed the history of employee raises and market adjustments throughout the years. He stated last year Council approved to raise employee salaries to the 75th percentile of the pay range and in December, 2021, Council adjusted the Police, Recreation, Streets, and other departments' wages to be competitive.

Greg Hembrock, Blue Ribbon Commission, stated the voluntary resignations went up about 50% from 2019 to 2021, which was concerning. That set the benchmark of where the City stood. Council Member Dickey asked where the employees were going. Jerry Benson, Interim Human Resources Director, stated Police officers were going all over: in state and out of state, to the private sector, and to other governmental organizations.

Cartin noted the Consumer Price Index (CPI) was 10.91% higher than the last benchmark. He reviewed current initiatives, including a new HR Director had been hired, budget requests for compensation software and additional resources for recruitment and retention, tracking employee turnover, the development of a long-term strategy to keep salaries competitive with the market and pay well, and manage performance.

Hembrock stated the study was two years old before it was implemented and was behind when it began. Losing people was costly because the City lost the institutional knowledge. He recommended looking at the entire compensation package. Cartin indicated the recommendation was to increase employee salaries to the 75th percentile and give a CPI adjustment of 10.33%. He noted Option One was to adjust the CPI percentage and Option Two was to adjust the monthly employee housing assistance, which hadn't been adjusted since 1997. Cartin indicated there were 45-48 employees using the housing assistance benefit.

Council Member Doilney stated Park City was a leader and he recognized there were many benefits, but compensation was key to getting employees. He requested staff and the commission to be more aggressive with raises and cost of living allowance (COLA) increases. He noted Vail gave a 20% COLA to their employees so 10% was behind the curve.

Council Member Toly asked why Recreation, Parks and Streets had a harder time hiring employees. Cartin stated there weren't many qualified mechanics to select from. Ken Fisher, Recreation Manager, stated it was hard to find part-time staff. Council Member Toly asked if there were bonus programs for employees. Penny Frates, Budget Analyst, indicated there were bonus programs linked to performance each year. Council Member

1 Toly stated compensation was important, but the environment was important too. She
2 thought work/life balance could be considered. She agreed with Council Member
3 Doilney that the City should be a leader in compensation and favored looking at
4 adjusting the employee housing assistance.

5
6 Council Member Gerber favored the 10% CPI and would consider a higher CPI, but
7 didn't know where to start. She liked increasing the housing assistance, and also
8 promoted implementing childcare assistance and looking at parental leave. Council
9 Member Dickey trusted staff to determine the right wage percentage. He asked if the
10 commission looked at the private sector for practices to retain employees. Benson
11 indicated the referral bonus and tuition assistance was promoted, and they were going
12 to implement a wage bonus for bilingual employees. The City had great health
13 insurance benefits, but vacation accumulation rates and parental leave could be looked
14 at further, as well as additional matching for 401k and 457 programs. If Council
15 approved, staff could look at additional initiatives. Council Member Dickey stated people
16 rarely left jobs they loved for more money and indicated he was interested in additional
17 initiatives. The Council agreed.

18
19 Council Member Rubell noted retention was also around morale. He suggested not
20 focusing on linear wage increases but looking at the lower paying jobs. He also
21 suggested looking at more annual and spot bonus programs. He supported keeping
22 employees in the community and wanted employees to live in the City limits. He
23 proposed a tiered housing assistance depending on zip code.

24
25 Bill Humbert, Blue Ribbon Commission, stated he was a professional recruiter. He
26 thought staff created an amazing plan, but he had some suggestions. Allowances given
27 to employees were taxable, and he suggested increasing it to cover taxes. He stated
28 there were opportunities to attract the best people. He thought the tweaks would make a
29 big difference.

30
31 Council Member Doilney felt this discussion was Council telling staff and the
32 commission that they supported them and they approved of ways to compensate staff in
33 a manner to retain them. Cartin asked what Council would see with regard to the COLA.
34 Council Member Gerber asked to see the budget for a 10.3% COLA, a COLA higher
35 than 10.3%, and a 10.3% COLA plus childcare assistance options. She needed to see
36 all the budget requests and weigh this against the other employee needs from
37 departments. Council Member Toly wanted to see the budget difference from increasing
38 the annual bonus from 5% to 10%.

39
40 Council Member Rubell asked to see the budget increase from higher wage increases
41 for the bottom 10% of wage earners. Hembrock asked if they should figure those
42 estimates for 10% across the board to make sure the City was competitive. Council
43 Member Rubell thought the 10% was baseline to all positions. He noted the resorts paid

1 \$21 per hour, so the City needed to stay competitive. Council Member Toly asked if an
2 employee engagement survey was given and stated that would be helpful in learning
3 employee attitudes with regard to staying/leaving.

4
5 IT Infrastructure: Scott Robertson, IT Director, Mindy Finlinson, Finance Manager, Erik
6 Daenitz, Assistant Budget Director, and Clint McAfee, Public Utilities Manager,
7 presented this item. Robertson stated there were significant changes in technology,
8 including more software usage, cybersecurity, water treatment facility IT needs, and the
9 City's financial system was sunseting.

10
11 McAfee explained Public Utilities relied on IT support and they needed people that
12 came with operating knowledge of how to monitor the system. This system was required
13 to be running continuously and interruptions required immediate response. He noted all
14 the IT duties in addition to other staff workloads and gave an example of the importance
15 of having institutional knowledge.

16
17 Finlinson reviewed the Eden financial software application and noted it was outdated
18 and it would take two to three years to integrate to a new system. This was a very large
19 investment. Daenitz proposed purchasing a data science component in the City. He
20 stated the City needed to be transparent and the data needed to be replicated. This
21 could be accomplished by digitizing neighborhood dashboards with statistics on crime,
22 traffic, visitors, etc. He noted certain progress would be made with minimal investment,
23 but it wouldn't accomplish the needs of the City. This proposal was a multi-year project.
24 Robertson stated leveraging technology was the best way to gain efficiencies and
25 technology was the norm for operating.

26
27 Council Member Toly thought these were needs for the community and data science
28 was a way to connect with the community. Council Member Dickey supported data
29 analytics. He didn't see training mentioned. Robertson indicated there was a good
30 training budget that wasn't used because they had been so busy. Council Member
31 Rubell supported data analytics and suggested it could be made in tandem or prior to
32 the financial software, and he thought there would be synergy there. Council Member
33 Gerber agreed. Council Member Doilney agreed and thought the City needed to be
34 strategic on how to grow the department. He thought staff did a phenomenal job. Mayor
35 Worel asserted there was a huge demand for data and there were many ways it could
36 be used to benefit the community. Council Member Toly asked if the website could be
37 more user-friendly. Robertson stated there were opportunities to revamp it. He noted a
38 new financial system would consolidate payment processes that were in different areas.

39 **2. Discuss Proposed Water Rate Changes:**

40
41 Jason Christensen, Water Resources Manager, stated water rates was a tool to
42 enhance water conservation. He updated Council that the water outlook was slightly
43 better than last year, but there would be similar messaging to the community for outdoor

1 watering. He reviewed water rates funded all operating costs and capital improvements.
2 He hoped to increase the rates to discourage usage and use the extra revenue to
3 decrease the cost of below average use, which would be revenue neutral.
4

5 Christensen explained the single-family residential accounts would all be at the lowest
6 base rate. They reduced the ideal yard size from .25 acre to .10 acre. Staff didn't
7 decrease irrigation accounts. He displayed the proposed rates. Daenitz stated in some
8 cases there was up to a 63% increase per year, but there was no instance of this
9 actually occurring. He proposed three options for implementation.
10

11 Council Member Doilney thought there should be a three percent increase immediately,
12 but for the new rate implementation, he was concerned the HOAs needed time to
13 process the change. He suggested sending out information on the future rate increase
14 and then increase the rates next year. Council Member Gerber asked if the new rates
15 could begin January 1st, to which Christensen affirmed. Council Member Gerber favored
16 implementing in January. She stated the residential units had more control over usage
17 and she suggested raising the structure a little so users weren't paying less for using
18 over 1,000,000 gallons of water per year. Council Member Doilney cautioned changing
19 the system because of one user that wouldn't change their behavior. Council Member
20 Gerber didn't want to punish them, but she wanted to keep the pressure to encourage
21 conservation.
22

23 Council Member Rubell supported conservation, but noted if neighboring jurisdictions
24 needed help, the City would help them. He referred to the study eight or nine years ago
25 and noted the forecasts. He thought this rate structure should focus on the other rate
26 classes. He agreed there shouldn't be discounts for irrigation. He thought it was good to
27 give discounts to multifamily units because not every unit had an irrigation meter. For
28 residential, the proposal was to penalize users for large water use, but he thought it
29 would be the law of diminishing returns, and speculated they would use less and then
30 not decrease usage much beyond that. He gave examples of residential users who
31 didn't have a choice when watering their lawn and there were no incentives to help them
32 change their landscape. If there were incentive programs, he would be supportive of
33 this. Many people were on fixed incomes and the fee might be very high during some
34 months. He suggested applying the tiered structure to three of the four categories, but
35 not increasing the fees to residential zones without the additional programs.
36

37 McAfee asked Daenitz if the revenue goal would still be achieved. Daenitz stated that
38 scenario would work. Council Member Doilney stated that would take this to a micro
39 level. He looked at this at a macro level with the two most common waterline sizes. He
40 indicated the old system worked. He knew people needed alternatives, but this
41 discussion was on overall water conservation. He wanted the system for the majority of
42 users, not the minority. Council Member Rubell stated this would affect 40% of the
43 users and the assumption was the higher water bill would change behavior.

1 Council Member Dickey gave examples of HOAs needing to do big capital projects
2 because they were being penalized for irrigating common areas, even if the condo
3 residents were conserving in their units. He asked where the full-time residents lived
4 and what the scale was of the impacts. He was concerned about unintended
5 consequences.

6
7 Council Member Toly stated the goal was conservation and commercial was more
8 wasteful than residential. There was more usage due to more tourism. Council Member
9 Rubell indicated one option would be to eliminate irrigation rates since the irrigation
10 water was the same treated water as consumer water. The users would pay the rate for
11 the class they were in. He noted the commercial and multifamily rates were lower than
12 residential rates. McAfee explained how the water was priced and stated they were
13 trying to isolate how much water was indoor and how much was used as irrigation.
14 Council Member Rubell wanted solutions that didn't cost the HOAs \$30,000-\$40,000 to
15 change their systems. Council Member Doilney asserted the only way to drive
16 conservation was for people to feel the pain. This was an emergency situation and so
17 far, residences were the only ones who felt it. He thought this model was fair.

18
19 Council Member Gerber stated irrigation usage had a 95% rate increase and noted it
20 was seasonal so it would only be charged six months of the year. She asked if the rates
21 would increase for others if there was drastic conservation. McAfee acknowledged if
22 less revenue was collected from any user class, adjustments would need to be made.
23 Council Member Gerber supported the proposed rates. She knew multifamily properties
24 had large common areas and she thought the City could do a step-up approach for
25 those rates.

26
27 Council Member Toly felt there was room to be aggressive with commercial rates in
28 future years for their higher use. Council Member Dickey asked for more information on
29 where the fulltime residents lived. He was not okay with the irrigation rates or the time
30 horizon on implementing the rates. He thought meter size wasn't clear. He requested
31 more information on multifamily, which ones had irrigation, and what they were charged.

32
33 Council Member Rubell was okay with the multifamily and commercial rates. He
34 supported a step-up approach on irrigation. He was against residential rate increases
35 without other conservation programs. If the residential rates were implemented, he
36 would want to implement the full rate for irrigation immediately. Council Member Dickey
37 agreed.

38
39 Mayor Worel asked for information on what conservation programs were available to
40 help residents. Council Member Rubell stated he was interested in learning about
41 programs which would touch water conservation, and which would touch water
42 conservation and the fire wise. Christensen requested Council recommend the three
43 percent inflation increase for FY2023. The Council agreed to the inflation rate increase.

Mayor Worel reviewed a three percent increase would be in the budget request, and this item would come back for additional discussion and clarification.

3. Consideration to Approve Ordinance No. 2022-08, an Ordinance Approving Amendments to Land Management Code § 15-2.1-2, § 15-2.2-2, § 15-2.3-2, § 15-2.4-2, § 15-2.5-2, § 15-2.6-2, § 15-2.7-2, § 15-2.9-2, § 15-2.10-2, § 15-2.11-2, § 15-2.12-2, § 15-2.13-2, § 15-2.14-2, § 15-2.15-2, § 15-2.16-2, § 15-2.17-2, § 15-2.18-2, § 15-2.19-2, § 15-2.23-2, For Zoning District Use Tables, § 15-15-1 Definitions, and Enacting a New §15-4-22, Outdoor Pickleball Courts in Residential Areas:

Browne Sebright, Planner, presented this item and reviewed the proposed amendments would modify zoning uses, modify the definition, and enact review requirements for pickleball court applications. He stated pickleball courts were noisy and more residents were requesting courts on their properties. He indicated the public outreach as staff worked on the code amendments. The proposed amendments would require public noticing, a one-acre minimum lot size, limiting hours of play, prohibiting outdoor lighting, limiting number of guests, and more. He noted a noise study must be performed if owners requested a court. All applications would go through a conditional use permit (CUP) process.

Mayor Worel asked what enforcement went with this ordinance. Sebright stated staff talked to the Police Department and they wanted to make sure the applicant knew the expectations from the beginning. Mayor Worel asked what happened if they didn't comply. Sebright stated the police could respond to a complaint, but it wasn't easy to enforce. It was important to educate from the beginning.

Council Member Toly stated there was a 600-foot setback and then notices would be sent to those living within 300 feet from the setback, and she thought that would still be on the owner's property. She didn't think 300 feet was enough. She wanted to see how far away the neighbors were. She asked if staff considered limiting the number of courts per neighborhood and requested that the construction process be mitigated as well.

Council Member Rubell thought the code was too complicated. There was a noise ordinance, and he requested that staff refer to the noise ordinance. The applicant needed to do a noise study by a third party and if it passed, the application was approved. If it did not pass, the application was denied. He asked that the process be made simpler or ban pickleball courts altogether.

Council Member Dickey agreed with Council Member Rubell, but he thought the code could be simplified to make it work. There were mitigations to allow it to pass a noise study. He requested that the preconference meeting language be changed to "optional", and eliminate the minimum lot size requirement since there was already the setback requirement. The applicants would meet the setbacks or not. He stated the noise study was required and then the applicant had to pay for a third-party review of the noise

1 study, and asked why Planning couldn't review it. Sebright stated the City Engineer
2 related it was outside their technical review authority. Council Member Dickey requested
3 eliminating the HOA noticing requirement. He also noted it didn't matter the hours of
4 operation if the courts weren't lit. Referring to the four guest maximum, Sebright stated
5 pickleball was a very social sport and dozens of people could come to the residence.
6 Council Member Dickey felt it was no different than having a party and he wanted to
7 eliminate the maximum guests. Council Member Gerber agreed that limiting guests and
8 the parking spaces would be difficult to enforce.

9
10 Council Member Doilney indicated the Planning Commission intentionally made it
11 difficult to have a pickleball court and now the Council was trying to strip the
12 requirements. He didn't know which side to support.

13
14 Mayor Worel opened the item for public input. No comments were given. Mayor Worel
15 closed the item for public input.

16
17 Council Member Rubell clarified he wanted to simplify Items Two, Three, and Four in
18 the report and he didn't want to eliminate all of them.

19
20 Council Member Gerber moved to continue to a date uncertain Ordinance No. 2022-08,
21 an ordinance approving amendments to Land Management Code § 15-2.1-2, § 15-2.2-
22 2, § 15-2.3-2, § 15-2.4-2, § 15-2.5-2, § 15-2.6-2, § 15-2.7-2, § 15-2.9-2, § 15-2.10-2, §
23 15-2.11-2, § 15-2.12-2, § 15-2.13-2, § 15-2.14-2, § 15-2.15-2, § 15-2.16-2, § 15-2.17-2,
24 § 15-2.18-2, § 15-2.19-2, § 15-2.23-2, for zoning district use tables, § 15-15-1
25 Definitions, and enacting a new §15-4-22, Outdoor Pickleball Courts in Residential
26 Areas. Council Member Gerber withdrew her motion.

27
28 Council Member Dickey moved to approve Ordinance No. 2022-08, an ordinance
29 approving amendments to Land Management Code § 15-2.1-2, § 15-2.2-2, § 15-2.3-2,
30 § 15-2.4-2, § 15-2.5-2, § 15-2.6-2, § 15-2.7-2, § 15-2.9-2, § 15-2.10-2, § 15-2.11-2, §
31 15-2.12-2, § 15-2.13-2, § 15-2.14-2, § 15-2.15-2, § 15-2.16-2, § 15-2.17-2, § 15-2.18-2,
32 § 15-2.19-2, § 15-2.23-2, for zoning district use tables, § 15-15-1 Definitions, and
33 enacting a new §15-4-22, Outdoor Pickleball Courts in Residential Areas with the
34 following changes: Line 1515, the preapplication conference made optional, strike Lines
35 1552 and 1553 to have no minimum lot size, strike Lines 1558 thru 1572 to eliminate
36 notice to the HOA, and strike Lines 1582-83 to eliminate maximum of four guests.
37 There was no second to the motion.

38
39 Council Member Gerber moved to approve Ordinance No. 2022-08, an ordinance
40 approving amendments to Land Management Code § 15-2.1-2, § 15-2.2-2, § 15-2.3-2,
41 § 15-2.4-2, § 15-2.5-2, § 15-2.6-2, § 15-2.7-2, § 15-2.9-2, § 15-2.10-2, § 15-2.11-2, §
42 15-2.12-2, § 15-2.13-2, § 15-2.14-2, § 15-2.15-2, § 15-2.16-2, § 15-2.17-2, § 15-2.18-2,
43 § 15-2.19-2, § 15-2.23-2, for zoning district use tables, § 15-15-1 Definitions, and

enacting a new §15-4-22, Outdoor Pickleball Courts in Residential Areas with the following changes: Line 1515, the preapplication conference made optional, strike Lines 1552 and 1553 to have no minimum lot size, strike Lines 1558 thru 1572 to eliminate notice to the HOA, and strike Lines 1582-84 to eliminate maximum of four guests and to eliminate the requirement of guest parking being onsite. Council Member Dickey seconded the motion.

Margaret Plane, City Attorney, asked that Council ask Planner Sebright about the HOA notice component to make sure eliminating the requirement was consistent with the rest of code. Sebright stated homeowners' associations could request to be on a list to be notified when applications came in. The code language would extend that to the conditional use permit. Council Member Toly had no problem notifying the HOA and she wanted to notify more people.

Council Member Dickey requested the motion be amended to notify owners within 1,000 feet from the property boundaries. Council Member Gerber felt Council had strayed, and she withdrew the motion. Council Member Dickey withdrew his second.

Council Member Rubell asked if this item would go back to the Planning Commission, and it was indicated it would not.

Council Member Gerber moved to continue Ordinance No. 2022-08, an ordinance approving amendments to Land Management Code § 15-2.1-2, § 15-2.2-2, § 15-2.3-2, § 15-2.4-2, § 15-2.5-2, § 15-2.6-2, § 15-2.7-2, § 15-2.9-2, § 15-2.10-2, § 15-2.11-2, § 15-2.12-2, § 15-2.13-2, § 15-2.14-2, § 15-2.15-2, § 15-2.16-2, § 15-2.17-2, § 15-2.18-2, § 15-2.19-2, § 15-2.23-2, For Zoning District Use Tables, § 15-15-1 Definitions, and enacting a new §15-4-22, Outdoor Pickleball Courts in Residential Areas, until April 28, 2022, and for staff to come back with information on noticing requirements, common procedures of HOAs, and the previously noted amendments in the proposed ordinance. Council Member Dickey seconded the motion.

RESULT: CONTINUED TO APRIL 28, 2022

AYES: Council Members Dickey, Gerber, and Toly

NAYS: Council Members Doilney and Rubell

4. Consideration to Approve the Extension of the Main Street Dining Deck Program for 2022 and Authorize the Mayor to Execute Leases of City Property/Right-of-Way with Nine Main Street Restaurants, in a Form Approved by the City Attorney:

Council Member Gerber asked where The Brick dining deck would move. Dave Thacker, Chief Building Official, stated the lease agreement allowed the decks to move from the property if the adjacent property owner agreed. In this case, an agreement was not reached and they were required to shorten the deck so it would not infringe on the

line of sight from 5th Street. Council Member Toly asked if Fletchers would move because of the drop and load (DLS) zone. Diersen explained it would encroach on the Bear Bench property. It wouldn't use parking spaces, but it would use City property.

Council Member Rubell asked if parking spaces were measured in fractions. Diersen stated cars were different sizes so that math was used. Council Member Rubell referred to the DLS zones, and asked if permit holders were told that dining decks were going in. Diersen stated they would be told, and many were already aware since this program had been going on for years. She also noted the west side DLS zone was added and that would not be affected by the dining decks.

Mayor Worel opened the item for public input. No comments were given. Mayor Worel closed the item for public input.

Council Member Gerber moved to approve the extension of the Main Street Dining Deck Program for 2022 and authorize the Mayor to execute leases of City property/right-of-way with nine Main Street Restaurants, in a form approved by the City Attorney. Council Member Doilney seconded the motion.

RESULT: APPROVED

AYES: Council Members Dickey, Doilney, Gerber, Rubell, and Toly

5. Consideration to Approve the 2022 Park Silly Sunday Market Supplemental Plan for the Park Silly Sunday Market (PSSM), a Level Four Special Event:

Jenny Diersen, Special Events Manager, and Michelle McDonald, PSSM, presented this item. Diersen noted one change in the plan was they were bringing vendor numbers up to pre-pandemic levels. Car-Free Sundays was a potential discussion and that would come back at a future meeting.

Council Member Rubell noted there were other events on Main Street in September that would overlap with PSSM. Diersen indicated there were some in review that hadn't been approved yet. Council Member Rubell stated he preferred that only small events overlap with PSSM.

Council Member Toly asked if the food would increase. McDonald said they had reduced the footprint last year because of COVID and this year they were going back to the regular footprint. Council Member Toly asked if the kids' activities were coming back. McDonald indicated 50% of the activities would be back because of budgetary concerns. Council Member Toly asked Diersen to mitigate traffic so vehicles would not come up Park Avenue and make a U-Turn. Diersen indicated when the Car-Free Sunday plans were finalized, those mitigations would be put in place.

Mayor Worel opened the public hearing. No comments were given. Mayor Worel closed the public hearing.

Council Member Rubell moved to approve the 2022 Park Silly Sunday Market Supplemental Plan for the Park Silly Sunday Market, a Level Four Special Event. Council Member Dickey seconded the motion.

RESULT: APPROVED

AYES: Council Members Dickey, Doilney, Gerber, Rubell, and Toly

6. Consideration to Authorize the City Manager to Execute a Construction Agreement, in a Form Approved by the City Attorney, with Silver Spur Construction to Construct the Marsac Avenue Waterline Replacement Project, in an Amount Not to Exceed \$1,090,000.00:

Griffin Lloyd, Public Utilities Engineer, presented this item and stated the project was to replace 1,000 feet of waterline because the current line was cast iron and corroded. Outreach was being performed. He noted this was a difficult road and a UDOT road. There would be a one-way route during construction, and he proposed diverting downhill traffic on Wheaton Way to Royal Street or from Swede Alley to Hillside Avenue. He hoped the project would be finished by Memorial Day.

Council Member Gerber asked if both detours could be simultaneous. Lloyd stated Royal Street was the preferred route going downhill. Council Member Toly asked how many construction projects were going on in Empire Pass, to which Lloyd didn't know. He noted staff wanted to do the project during shoulder season. Council Member Toly asked what the impacted properties included for receiving notifications. Lloyd stated it was Marsac, Ontario, and Hillside and noted all the driveways would be accessible. Council Member Toly preferred the Royal Street detour.

Council Member Doilney stated the City's goal was to keep traffic off Hillside. He preferred Royal Street. Council Member Dickey agreed and wanted more advanced notice to residents for these big projects. Council Member Rubell asked if there was a penalty or incentives for the contractor to finish quicker, to which Lloyd indicated there wasn't. Council Member Rubell thought anything that could be done to ensure that the project remain on time would be helpful. He also requested extra traffic mitigation on Hillside Avenue during this time.

Mayor Worel opened the item for public input.

Peter Marth stated the first he heard of the project was two days ago and indicated service vehicles were going on Hillside. There was supposed to be follow-up meetings on mitigation when the road was narrowed and there were none. There had been progress in the last two years and the traffic was going to revert back to the way it was.

He requested that all the traffic go on Royal Street. Council Member Doilney explained the plan to go up Marsac and down Royal Street.

Mayor Worel closed the item for public input and asked if UDOT approved of only having one lane closed for the project, to which Lloyd affirmed.

Council Member Rubell asked if staff had notified the Fire Station since they were temporarily located at the Mine Bench. Lloyd stated there was an initial notification. Council Member Toly requested signage on Deer Valley Drive for those who weren't familiar with the area.

Council Member Gerber moved to authorize the City Manager to execute a construction agreement, in a form approved by the City Attorney, with Silver Spur Construction to construct the Marsac Avenue Waterline Replacement Project, in an amount not to exceed \$1,090,000.00. Council Member Doilney seconded the motion.

Council Member Rubell asked to amend motion to include active traffic mitigation. Council Member Gerber stated she was not willing to have a person there at all hours. Lloyd noted Marsac would be open at night. Council Member Gerber favored placing signage on Hillside. Council Member Rubell thought there would be significant traffic on Hillside. Council Member Dickey stated there was a lot of traffic mitigation for ski days and he favored amending the motion and if there was no traffic after three days, then staff could stop the management. McAfee stated Hillside wasn't closed to traffic so staff wouldn't know who to prohibit. Council Member Gerber did not accept the amendment to the motion.

RESULT: APPROVED

AYES: Council Members Dickey, Doilney, Gerber, and Toly

NAY: Council Member Rubell

7. Consideration to Authorize the City Manager to Execute a Construction Agreement, in a Form Approved by the City Attorney, with Harrison Western Construction Corporation Inc., to Fund the Spiro Mine Tunnel Reconstruction Project Phase 2, in an Amount Not to Exceed \$4,500,000.00:

Griffin Lloyd, Public Utilities Engineer, explained it was important to keep the water in the tunnel flowing and continued maintenance on the tunnel was needed. He reviewed the history of this project and indicated the first 400 feet was reconstructed and now the second phase would address the other concerns in the tunnel. This would be done in two eight-month periods. The red shale area was the most critical and was 6,600 feet from the entrance. It was reconstructed once in the 1970s.

Council Member Dickey wanted to clarify the contingency on top of the maximum price. Lloyd stated a maximum price was given but an owner's contingency would allow additional work if needed. Council Member Rubell asked if this went out to bid or continued with the previous contractor. Lloyd stated it went to RFQ and only received one bid from previous contractor. Council Member Rubell asked if the public would be allowed to tour the mine. McAfee stated it was a risk and liability. It was also a water source and having people in the tunnel would change the treatment plan. He did not recommend allowing the public.

Mayor Worel opened the item for public input. No comments were given. Mayor Worel closed the item for public input.

Council Member Doilney moved to authorize the City Manager to execute a construction agreement, in a form approved by the City Attorney, with Harrison Western Construction Corporation Inc., to fund the Spiro Mine Tunnel Reconstruction Project Phase 2, in an amount not to exceed \$4,500,000.00. Council Member Toly seconded the motion.

RESULT: APPROVED

AYES: Council Members Dickey, Doilney, Gerber, Rubell, and Toly

VII) ADJOURNMENT

I) PARK CITY HOUSING AUTHORITY MEETING

II) ROLL CALL

Attendee Name	Status
Chair Nann Worel Board Member Ryan Dickey Board Member Max Doilney Board Member Becca Gerber Board Member Jeremy Rubell Board Member Tana Toly Matt Dias, Executive Director Margaret Plane, City Attorney Michelle Kellogg, Secretary	Present
None	Absent

III) PUBLIC INPUT (ANY MATTER OF CITY BUSINESS NOT SCHEDULED ON THE AGENDA)

Chair Worel opened the meeting for any who wished to speak or submit comments on items not on the agenda. No comments were given. Chair Worel closed the public input portion of the meeting.

IV) WORK SESSION

1. Discuss Deer Valley's Proposed Affordable Housing Obligation Calculation for the Development of the Deer Valley Snow Park Area:

Jason Glidden, Affordable Housing Manager, reviewed this was discussed at the February 3rd meeting. Deer Valley proposed to meet the current Housing Resolution requirements for their affordable housing obligation. Rich Wagner, Deer Valley Housing Development Manager, stated they were willing to build the 67.1 affordable unit equivalents (AUE) and if the assessment was lower, they would still build that number.

Board Member Dickey asked if the food and beverage square footage for amenities where food was involved, such as bowling, a pool or a spa, was allocated to the food and beverage class. Wagner stated food and beverage was taken out of those amenities. Glidden indicated this was an estimate and as the construction documents were defined, staff could evaluate and adjust it if needed. Any amendments would have to go through the Housing Authority.

Board Member Gerber clarified there was no addition of employees per hotel room, but they just reduced the number of hotel rooms, to which Glidden affirmed. Council Member Toly stated a new lift was being added and it would require new employees. Wagner stated there would be the same amount of total lifts and employees. Board Member Toly thought there would be more employees for the expanded areas. Wagner stated the employees would be redistributed. Board Member Toly indicated the plan was to eliminate one of the hotels and add condos. Wagner noted the plan included 35 condos.

Board Member Rubell asked that more affordable units be constructed in Phase One when this came back for final approval. He also wanted to discuss uses that did not create a housing obligation, such as daycare. Board Member Gerber wanted to see onsite housing when the overall housing plan was discussed. There was also a discrepancy between the land the City was asked to vacate and the square footage of Doe Pass and she asked if that additional square footage could be made up with housing.

Chair Worel opened the item for public input. No comments were given. Chair Worel closed the item for public input.

V) ADJOURNMENT

1 With no further business, the meeting was adjourned.

2

3

4

Michelle Kellogg, City Recorder

Council Agenda Item Report

Meeting Date: May 5, 2022

Submitted by: Michelle Kellogg

Submitting Department: Executive

Item Type: Resolution

Agenda Section: CONSENT AGENDA

Subject:

Request to Adopt Resolution 09-2022, a Resolution Proclaiming May 13, 2022 as Arbor Day and Celebrating Park City's 29th Anniversary as a Tree City USA Community

Suggested Action:

Attachments:

[Arbor Day Staff Report](#)

[Exhibit A: Arbor Day Resolution](#)



City Council Staff Report

Subject: Arbor Day Proclamation

Author: Michelle Kellogg

Department: Executive

Date: May 5, 2022

Type of Item: Administrative

Recommendation

Approve the proposed resolution proclaiming May 13, 2022, as Arbor Day and celebrating Park City's 29th anniversary as a "Tree City USA Community."

- a. The resolution demonstrates the City's support of planting trees in the City.
- b. The resolution promotes participation of cleaning up the community
- c. Supporting this resolution will demonstrate that the City values the beauty of nature within the community.

Background

In 1872, J. Sterling Morton proposed to the Nebraska Board of Agriculture that a special day be set aside for the planting of trees. This holiday, called Arbor Day, was first observed with the planting of more than a million trees in Nebraska. Arbor Day is now observed throughout the nation and the world.

Park City's Sustainability team has launched Planting Park City ([LINK](#)), an initiative to facilitate planting one tree per resident, as part of its pathway to net-zero carbon by 2030. Trees help trap carbon in vegetation and soils and remove them from the atmosphere. Strategically planted trees also protect the community against increasingly hot summers due to climate change. Last autumn, 200 trees were distributed to residents in partnership with TreeUtah. This spring, Park City has partnered with the Arbor Day Foundation to provide 200 additional trees for people to plant and care for in their own yards. Additional tree planting activities are being planned for summer and autumn of 2022.

The Opportunity

In consideration of requests received from the community to celebrate Arbor Day and in the spirit of our 29th anniversary as a Tree City USA, on May 13th, a tree will be planted and tree seedlings will be distributed to residents at City Park. Residents are encouraged to plant trees at home.

Attachments

Exhibit A: Arbor Day Resolution



Resolution No. 09-2022

RESOLUTION PROCLAIMING MAY 13, 2022, AS ARBOR DAY AND CELEBRATING PARK CITY'S 29th ANNIVERSARY AS A TREE CITY USA COMMUNITY

WHEREAS, Park City is committed to maintaining its natural trees and resources, demonstrated by the City Council's constant support of beautification projects and the enactment of codes specifically created to protect vegetation; and

WHEREAS, participation in the Tree City USA Program fosters community pride and creates a great environment to live and work, and annual recognition demonstrates to residents and visitors that trees, conversation and the environment are an important part of life in our town; and

WHEREAS, the City Council, acting in the best interests of its citizenry, regards these enhancements as high priorities to enjoy and to ensure for future generations, and

Whereas, the Planting Park City initiative aims to facilitate planting one tree per resident, as part of its pathway to net-zero carbon by 2030. Trees help trap carbon in vegetation and soils and remove them from the atmosphere. Strategically planted trees also protect our community against increasingly hot summers due to climate change.

WHEREAS, the National Arbor Day Foundation, in cooperation with the National Association of State Foresters and the USDA Forest Service, has named Park City as a Tree City USA for the 29th year; and

WHEREAS, in consideration of requests received from the community to celebrate Arbor Day and in the spirit of our 29th anniversary as a Tree City USA, on May 13th a tree will be planted at City Park and tree seedlings will be distributed via curbside pick-up. Residents are encouraged to plant trees at home.

NOW, THEREFORE, BE IT RESOLVED that the Mayor and City Council hereby proclaim May 13, 2022 as ARBOR DAY IN PARK CITY, UTAH.

The Mayor and City Council extend their appreciation for the exceptional service

provided by Parks Department employees, who do an outstanding job every day of the year to ensure that Park City is a beautiful place to live, play and visit.

PASSED AND ADOPTED this 5th day of May, 2022.

PARK CITY MUNICIPAL CORPORATION

Mayor Nann Worel

Attest:

Michelle Kellogg, City Recorder

Approved as to form:

City Attorney's Office

Council Agenda Item Report

Meeting Date: May 5, 2022

Submitted by: Michelle Kellogg

Submitting Department: Community Development

Item Type: Ordinance

Agenda Section: OLD BUSINESS

Subject:

Consideration to Adopt Ordinance No. 2022-11, An Ordinance of Park City Municipal Corporation Amending Volume I: Executive Summary: Policies and Objectives, Part 1 - Public Service Contracts in the Adjusted Budget for FY 2022 for Park City Municipal Corporation and its Related Agencies (A) Public Hearing (B) Action

Suggested Action:

Attachments:

[Lite Deed Restrictions Staff Report](#)

[Exhibit A: PCMC Budget Policy Chapter 6 Live Park City](#)

[Exhibit B: Budget Amendment Ordinance](#)

City Council Staff Report

Subject: Live Local Park City - Lite Deed Restriction Program
Author: Jason Glidden, Housing Development Manager
Department: Housing
Date: May 5, 2022
Type of Item: Administrative

Recommendation

Adopt Ordinance No. 2022-11 amending the budget to fund the Live Local Park City – Lite Deed Restriction pilot program. The primary goal of this program is providing more housing supply for year-round Park City residents.

PLEASE NOTE: City Council amended and approved the Live Local Park City – Lite Deed Restriction Program on April 28, 2020. As part of the approval, the City Council made the following amendments:

- Requested that clarify the language to restrict the period of time that a unit can be vacant to less than 30 days without the approval of the City.
- Qualified applicants/renters must be employed within City limits rather than within the Park City School District.

The following staff report was provided for that meeting. Due to noticing issues, the approval of the amended budget policy and budget ordinance was delayed to May 5th. Both documents are available as exhibits to this report.

Executive Summary

Park City's Housing program strives to facilitate a range of affordable, quality housing opportunities to meet the life cycle needs of persons at all economic levels. The Housing Team continues to research new tools to make progress on this goal. To this end, the Housing Team is requesting approval of a new Lite-deed restriction pilot program that has been very successful in other communities.

The goal of the Lite-deed program is to help Park City maintain a sense of community by incentivizing new and existing residents to place deed restrictions on their property in exchange for a cash payment from the City in order to promote year-round residency, more workforce housing opportunities, and down payment assistance. The proposed program would:

- Promote more full-time residents and less second-home ownership;
- Encourage investments in workforce housing;
- Provide down payment assistance for those just out of the market; and
- Create an option for current homeowners to ensure their home offers the ability for future residents to live and work in Park City in perpetuity.

Background

Park City is amid an affordable housing crisis. The recent Park City Housing Needs Assessment stated that well over 800 units are likely needed over the next five years. The Vision 2020 process demonstrated that addressing housing affordability is one of the highest policy priorities for municipal government. Accordingly, the City is taking a multifaceted approach to preserving and growing the housing inventory.

Other communities, such as Vail and Breckenridge, have seen success with similar lite-deed housing programs. The Housing Team met multiple times with both Vail and Breckenridge to discuss lessons learned from their programs and reviewed the language of each town's deed restrictions.

In short, the Lite deed restriction program would provide cash payments to qualified property owners in exchange for a deed restriction on their property. In turn, the deed requires year-round occupancy.

The deed restrictions differ from the typical affordable housing deed restrictions, such that they don't contain income limits, appreciation caps, and other typical requirements. Instead, the program would utilize "Lite" deed restrictions stipulating that the property is occupied by a full-time Park City resident thereby increasing the year-round supply of housing availability in Park City. The restrictions would require that the property is either occupied by the owner who is a full-time resident of Park City (minimum of 10 months a year), working 30 hours per week within the City's boundaries, or a long-term renter (greater than 6 months), working 30 hours per week within City's boundaries. The program also includes a retiree provision, and the deed restrictions remain in perpetuity with the property to ensure the property is occupied and doesn't become part of the resort economy pool of housing.

Deed Restriction Purchasing

The amount of money paid in exchange for the deed restriction depends on several variables. Valuations are market-dependent and consider how well a property aligns with bolstering the City's goals. For example, in Vail and Breckenridge, average compensation for placing a deed restriction on a property ranges from 16-17% of the home's appraised value, with some deed restrictions being purchased at lower rates, such as from 14-15%. Each home would be appraised, and the appraised value considered in context with its alignment toward City's goals to determine the final price of a deed restriction. All deeds will follow Utah-specific law and GASB financial rules.

Based on conversations with local realtors, we estimate that deed restrictions would likely be worth about 20% of the appraised value of each property. Deed restriction prices would still vary within a few percent's of 20%, based upon how closely a property aligns with the Program's goals. Condition, location, and other factors contribute to the value of a deed restriction and its price.

Benefits of the Program

As other municipalities demonstrated, the Lite-deed Program can help to incentivize full-time residency and increase long-term rental opportunities by:

- Creating a mixed approach to housing deed restrictions - the Program does not have income or appreciation caps, so it will create a more comprehensive overall deed restriction program to help various socioeconomic levels in Park City;
- Creating a community with more full-time residents and fewer empty units throughout the town used to support the resort economy. This means more options for those seeking full time residency;
- Additional support for workforce – provides some desperately needed and viable additional workforce housing options; and
- Reducing housing insecurity – employee housing supply in-town has become virtually non-existent. More year-round housing options will support employees and local businesses.

Additionally, the town of Vail conducted an economic development study that demonstrated the economic impacts of the Vail InDeed program on its local community. A copy of the study is provided in Exhibit A of this report.

Users of the Program

Existing Homeowners – Existing homeowners can apply to have a deed restriction placed on their property. The funds are often used in other communities to remodel or make repairs to the home as a form of equity.

Future Homeowners – The Town of Vail specifically has success using this program for down payment assistance. Providing 20% of the home value in cash allows some individuals priced out of the Park City market to obtain down payment assistance.

Property Investors – Because the deed restrictions allow long-term rentals, property investors could use the additional funding to make property investments. This creates more rental units for Park City's workforce and those seeking long-term rentals.

Local Employers – The program could also help local employers to purchase employee housing. There is a growing trend of small businesses buying property and renting to employees. For example, in Vail, employers have bought larger, 3+ bedroom properties for their employees using the funding.

Retirees- Seniors could benefit in a variety of ways. They can make home improvements, make extra funds, or lock-in their property to benefit future generations for year-round residency.

Brief History

1. The City Council first discussed the program at a work session on July 15, 2021, and unanimously encouraged further research and consideration of a pilot program.
2. Held on November 11, 2021, Council's primary feedback during work session was that the application requirements for a PC program were too restrictive. Council recommended removing the employment requirements to broaden the program's reach. The employment requirements also allow groups like seniors/ retirees to participate and focus primarily on long-term residents in Park City.

3. Held on February 3, 2022, the new Mayor and City Council in work session recommended a fourth work session after raising concerns over a few facets of the program, such as verifications for residency and deed restriction details.
4. Held on March 17, 2022, Council unanimously recommended bringing the program back on April 28, 2022, to consider approval. Council recommended returning to the roots of the Vail InDeed program to mirror the success that peer community have achieved. The main change is re-introducing employment requirements. Several Council members felt that the Housing Team conduct a pilot program that mirrors Vail's and then return to contemplate changes for Park City's specific program after the pilot commences.

Analysis

Park City Housing Stock

The Housing Team has conducted regular meetings with local realtors, including the PC Board of Realtors, to identify housing stock that might apply. A price cap of approximately \$1 million was determined through these conversations. Homes under \$1 million were researched for their potential.

According to the PC Board of Realtors, over the past two years (from April 20, 2020- to April 20, 2022), there is a large pool of almost 2,000 properties not currently on the market but could participate in the program. For example, the Prospector area has 509 potential units, which would qualify for the program. The Old Town area has about 144 properties, and the Woodside area near the resort base has around 430 properties that could be targeted. These numbers demonstrate a sufficient pool of properties, even in today's market. Properties valued at under 1M were considered in these statistics.

Staff recommends targeting the Prospector district and Woodside areas first with community education and engagement information. The neighborhoods are walkable, services by transit, and have lower price points, meaning more deed restrictions could be purchased for a lower overall price. Maintaining a program price-point of \$750,000 and under will increase the total number of deed restrictions purchased. Because of this price cap, the program would mainly target units within multifamily condos and apartment buildings.

Deed Restriction Language

The deed restrictions will be different from typical deed restrictions because they do not contain income limits, appreciation caps, or other special requirements. While draft deed restrictions mirror the City's template, criteria for target households were changed to remove income and net worth requirements. There is also no equity cap placed on the property as part of the deed restrictions.

Process

The process begins when a homeowner or buyer submits an application to the Housing Team.

1. Complete application is submitted and confirmed complete
2. Property appraisal obtained
3. Appraised value reviewed in combination with criteria, such as walkability, if the property furthers the goals outlined in the Park City Vision 2020 document, and is the product type desired
4. Housing Team provides a property evaluation and recommendation to the Lite-deed Advisory Committee
5. Advisory Committee recommends action to the City Manager
6. City Manager reviews and approves or denies
7. If approved, Notice of Deed Restriction Purchase Agreement signed by the homeowner and Park City Municipal.
8. Recordation of deed restriction occurs at time of ownership transfer or immediately in the case of existing ownership.

Advisory Committee

To expedite implementation and meet the needs of the home buying process, the Housing Team proposes an Advisory Committee to review and recommend action to the City Manager. The Advisory Committee would also negotiate the cash value of the deed restriction. The City Manager's final approval would carry the following limits:

- Final approval delegated to City Manager for properties receiving \$200,000 or less.
- Properties with more than \$200,000 contemplated require City Council approval.

The Advisory Committee is appointed by the Mayor, with advice and consent of City Council via resolution. The Housing Team proposes the following composition/representation: Board of Realtors, Mountainlands Community Housing Trust, Habitat for Humanity, a local lending/ banking professional, and a City Council representative.

Funding

Staff estimates a pilot program is created for \$1,000,000 and allocated out of the affordable housing fund. Disbursement of funds shall be administered in accordance with the program criteria established by the Housing Department, and in consultation with the City's Finance Director and City Attorney.

Attachments

- Exhibit A - Budget Policy - Chapter 6 - Program Language
- Exhibit B - Ordinance No. 2022-11, An Ordinance of Park City Municipal Corporation Amending Volume I: Executive Summary: Policies and Objectives, Part 1 - Public Service Contracts in the Adjusted Budget for FY 2022 for Park City Municipal Corporation and its Related Agencies

CHAPTER 6 - OTHER POLICIES

PART VI – Live Park City – Lite Deed Restriction Program

The City Council may appropriate funds dedicated to the purchase of deed restrictions for housing vitality and preservation within the City limits of Park City. The Live Park City housing program purchases deed restrictions that require owner occupancy or long-term rental of the property. The disbursement of funds will be administered by the City Manager and based on the recommendation of an Advisory Board created by City Council and following program criteria established by the Housing Department and adopted by City Council. The Advisory Board has the authority to award recommendations and to enter and negotiate individual deed restrictions, subject to approval by the City Manager provided the funds being provided is less than \$200,000. If the home funds in an application exceeds \$200,000, the authority to approve a deed restriction and delegate funds is subject to City Council approval.

Ordinance No. 2022-11

AN ORDINANCE AMENDING VOLUME I: EXECUTIVE SUMMARY: POLICIES AND OBJECTIVES, PART I - PUBLIC SERVICE CONTRACTS IN THE ADJUSTED BUDGET FOR FY 2022 FOR PARK CITY MUNICIPAL CORPORATION AND ITS RELATED AGENCIES.

WHEREAS, Utah State law requires that city budgets be adopted by ordinance and Park City includes several administrative policies within the budget documents; and

WHEREAS, a public hearing was held on May 5, 2022, at the City Council's regularly scheduled meetings.

NOW, THEREFORE, BE IT ORDAINED by the City Council of Park City, Utah that:

SECTION 1. 2021 ADJUSTED BUDGET VOLUME I: EXECUTIVE SUMMARY: POLICES AND OBJECTIVES AMENDMENT. CHAPTER 6 – OTHER POLICIES as outlined Page 140 in the City Council Adopted Budget adopted on December 16, 2021, is hereby amended as shown in Exhibit A.

SECTION 2. EFFECTIVE DATE. The 2022 Adjusted Budget Policy Amendment shall take effect upon publication.

PASSED AND ADOPTED this 5th day of May, 2022.

PARK CITY MUNICIPAL CORPORATION

Mayor Nann Worel

Attest:

Michelle Kellogg, City Recorder

Approved as to form:

City Attorney's Office

Council Agenda Item Report

Meeting Date: May 5, 2022

Submitted by: Michelle Kellogg

Submitting Department: Engineering

Item Type: Staff Report

Agenda Section: OLD BUSINESS

Subject:

Consideration to Authorize the City Manager to Execute a Construction Agreement with Wardell Brothers Construction to Construct the Quinn's Junction Park and Ride Project, in a Form Approved by the City Attorney, Not to Exceed \$3,452,472.30
(A) Public Input (B) Action

Suggested Action:

Attachments:

[Quinn's Junction Park and Ride Staff Report](#)

[Exhibit A: Project Location Map](#)

[Exhibit B: Bid Summary](#)

[Exhibit C: Quinn's Junction Park and Ride Wardell Brothers Bid](#)

[Exhibit D: Draft Construction Agreement](#)

[Exhibit E: Quinn's Park and Ride Evaluation](#)

City Council Staff Report



Subject: Quinns Junction Park and Ride Construction Contract
Author: John Robertson, PE, City Engineer
Department: Engineering
Date: May 5, 2022
Type of Item: Old Business

Recommendation

Authorize the City Manager to execute a construction agreement with Wardell Brothers Construction (Contractor) to construct the Quinns Junction Park and Ride Project (Project), in a form approved by the City Attorney, not to exceed \$3,452,472.30.

Executive Summary

The Project was advertised beginning on January 18, 2022, and construction bids were due on March 3, 2022. The project was advertised in several local periodicals for a total of four (4) weeks. Six addendums were prepared in response to questions submitted by various interested parties and to clarify various federal wage requirements that are a part of this contract. The bid opening date was pushed out twice to provide the contractors ample opportunity to review and process the issued addendums. Five bids were received ranging from the lowest responsive/responsible bid submitted by the Contractor to the highest submitted bid of over \$5 million dollars (Exhibit B).

Upon review of all submitted bids, we confirmed that the Contractor had included all required documentation and was the lowest responsive/responsible bidder. We request authority be given to the City Manager to enter into a contract with the Contractor in a form approved by the City Attorney to construct the Project.

Background

PCMC was awarded a grant of \$3.9M from the Federal Transportation Administration (FTA) for the construction of a park and ride lot. In April of 2020 the Transportation Planning Department presented an update to Council that included the Project status and a summary of the reasoning behind the selection of the site at Quinn's Junction adjacent to the US-40 northbound on-ramp (Exhibit E). When completed the Project will create 465 parking stalls and support the elevation of transit priority services on SR-248.

Construction will begin as weather permits (May 2022). It is anticipated that the project will be completed in Fall 2022, hopefully making it available for winter 2022/23.

Below is a list of Council actions or discussions taken during the design phase of the project.

- November 9, 2017 - Staff presented an overall programmatic update to City Council that included updates on local and regionally significant transportation projects. The park and ride improvements on SR-248 were included and supported in this update.
- March 24, 2018 - Staff issued an RFP for the park and ride site evaluation and design that was posted in all the normal media outlets.
- February 28, 2019 – City Council approved a design professional services agreement to AECOM for final design and plan preparation services.
- March 15, 2019 – Staff issued a Notice to Proceed for the site evaluation and final design services to AECOM.
- April 2020 – Update to Council regarding the Project that included a recap of the initial policy direction related to site constraints, available funding, and a summary of the planning/design/analytical work conducted to that date in time.
- July 29, 2020 – First addendum executed to prepare a traffic impact study at the request of UDOT.
- March 31, 2022 - Item continued to present additional information to Council.

Analysis

Staff reviewed the submitted bid documents and determined that all the required documentation per the bid documents were submitted and confirmed that the bid was both responsive and responsible.

Department Review

This staff report has been reviewed by the City Manager, Community Development, Budget and the Attorney's Office.

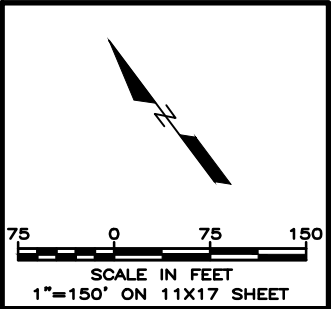
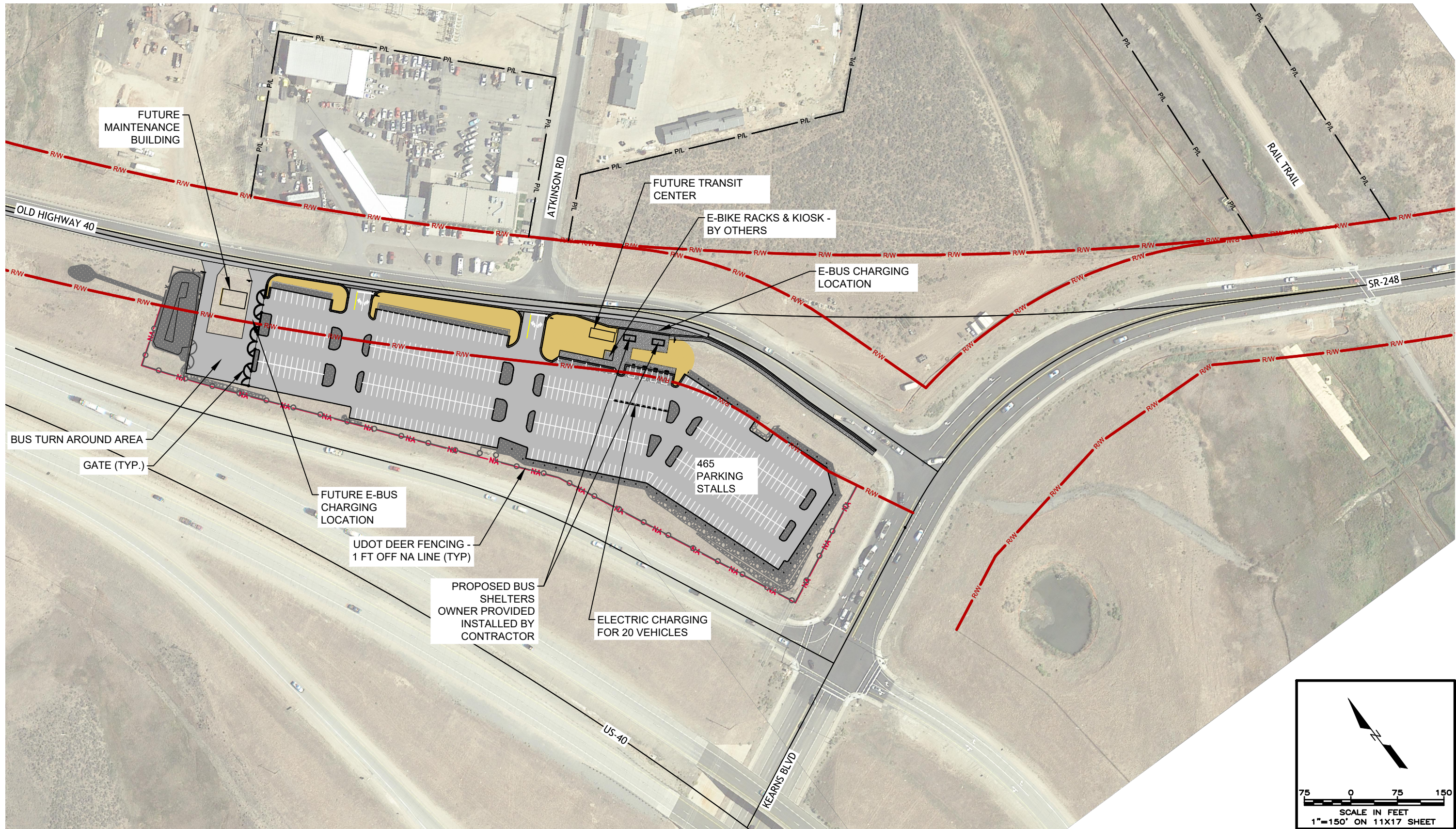
Funding Source

The Quinn's Junction Park and Ride lot is a fully funded capital project using the FTA grant and several local funded transportation funding sources including the Transportation Sales Tax initiative and Third Quarter County Tax.

Exhibits

Exhibit A: Project Location Map
 Exhibit B: Bid Summary
 Exhibit C: Wardell Brothers Construction bid
 Exhibit D: Draft Construction Agreement
 Exhibit E: Quinn's Park and Ride Evaluation

DWG File: C:\pwworking\aeacom ds21 na 2020\dms68851\C-100-103 SITE PLAN.dwg



REV	DATE	DESCRIPTION
C	04-13-2020	90% PACKAGE
B	08-14-2020	60% PACKAGE
A	01-24-2020	30% PACKAGE

Submittal:

EXHIBIT

Seal:

**PRELIMINARY
NOT FOR
CONSTRUCTION**

Consultant:

AECOM

756 East Winchester Street
Suite 400
Salt Lake City, UT 84107
Phone: (801) 904-4000
Fax: (801) 904-4100

Submitted By: _____

Client:

PARK CITY
1884

Approved By: _____

Designed By:
J. UPRIGHT

Drawn By:
J. UPRIGHT/
S. CARROLL

Checked By:
G. STONE

Approved By:
J. UPRIGHT

QUINN'S JUNCTION PARK AND RIDE

**OVERALL SITE
C-100**

1" = 150' @ 11X17

CADD Filename:
C-100-103 SITE PLAN.dwg

Submittal Date:
10/06/2021

Contract No.:
60600697

Alignment: _____ Sheet No.: **8**
42

QUINNS JUNCTION

					VanCon		SkyView Excavation & Grading Inc.		MC Contractors		Wardell Brothers		Geneva Rock	
Item #	Specification	Quinn's Junction Bid Description	Bid Quantity	Unit	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price
SCHEDULE NO. 1 - GENERAL REQUIREMENTS														
101	APWA 01 71 13	Mobilization	1	Lump Sum	\$ 125,000.00	\$ 125,000.00	\$ 500,000.00	\$ 500,000.00	\$ 225,000.00	\$ 225,000.00	\$ 115,000.00	\$ 115,000.00	\$ 150,000.00	\$ 150,000.00
102	APWA 01 55 26	Traffic Control	1	Lump Sum	\$ 30,000.00	\$ 30,000.00	\$ 2,000.00	\$ 2,000.00	\$ 2,000.00	\$ 2,000.00	\$ 2,000.00	\$ 2,000.00	\$ 2,000.00	\$ 2,000.00
103	APWA 01 31 13	Public Information Services	1	Lump Sum	\$ 25,000.00	\$ 25,000.00	\$ 4,000.00	\$ 4,000.00	\$ 12,000.00	\$ 12,000.00	\$ 3,000.00	\$ 3,000.00	\$ 4,000.00	\$ 4,000.00
TOTAL SCHEDULE NO. 1						\$ 185,000.00	\$	\$ 524,000.00	\$	\$ 277,450.00	\$	\$ 115,000.00	\$	\$ 241,400.00
SCHEDULE NO. 2 - ROADWAY														
201	APWA 01 57 00	Dust Control and Watering	1000	1000 gallon	\$ 10.00	\$ 10,000.00	\$ 35.00	\$ 35,000.00	\$ 10.00	\$ 10,000.00	\$ 28.61	\$ 28,610.00	\$ 10.00	\$ 10,000.00
202	APWA 02 41 13	Remove manhole	203	Linear Foot	\$ 20.00	\$ 4,060.00	\$ 5.00	\$ 1,015.00	\$ 4.00	\$ 816.00	\$ 4.00	\$ 812.00	\$ 2.75	\$ 559.75
203	APWA 02 41 13	Remove fence	1118	Linear Foot	\$ 5.00	\$ 5,590.00	\$ 1.25	\$ 1,397.50	\$ 1.00	\$ 1,118.00	\$ 1.00	\$ 1,118.00	\$ 2.25	\$ 2,516.50
204	APWA 31 05 11	Concrete Runway (Plan Quantity)	166	Cubic Yard	\$ 75.00	\$ 12,450.00	\$ 35.00	\$ 5,810.00	\$ 25.00	\$ 4,150.00	\$ 25.00	\$ 4,150.00	\$ 48.00	\$ 7,968.00
205	APWA 31 11 00	Clearing and Grubbing (Plan Quantity)	7	Acre	\$ 12,000.00	\$ 84,000.00	\$ 14,000.00	\$ 98,000.00	\$ 6,000.00	\$ 42,000.00	\$ 5,000.00	\$ 35,000.00	\$ 7,000.00	\$ 49,000.00
206	APWA 31 23 15	Remove Asphalt Pavement	1005	Square Yard	\$ 5.00	\$ 5,025.00	\$ 15.00	\$ 15,075.00	\$ 15.00	\$ 15,075.00	\$ 15.00	\$ 15,075.00	\$ 8.00	\$ 8,040.00
207	APWA 31 23 15	Roadway Excavation (Plan Quantity)	17120	Cubic Yard	\$ 15.00	\$ 256,800.00	\$ 35.00	\$ 600,200.00	\$ 35.00	\$ 600,200.00	\$ 15.00	\$ 256,800.00	\$ 22.00	\$ 378,720.00
208	UDOT 2020 Specification 0201	HECP Type 3	47	1000 Square Feet	\$ 175.00	\$ 8,225.00	\$ 195.00	\$ 9,165.00	\$ 160.00	\$ 7,520.00	\$ 350.00	\$ 16,450.00	\$ 0.20	\$ 9.40
209	APWA 32 11 23	Unseamed Base Course (Plan Quantity)	4308	Cubic Yard	\$ 70.00	\$ 301,360.00	\$ 42.00	\$ 181,224.00	\$ 42.00	\$ 181,224.00	\$ 44.00	\$ 189,552.00	\$ 40.00	\$ 174,720.00
210	APWA 32 15 05	HMA 1 1/2 Inch	3103	Ton	\$ 115.00	\$ 356,850.00	\$ 91.00	\$ 282,030.00	\$ 91.00	\$ 282,030.00	\$ 81.00	\$ 252,810.00	\$ 70.00	\$ 217,470.00
211	APWA 32 15 13	Concrete Flapwork 1 Inch Thick	2520	Square Linear Foot	\$ 13.00	\$ 32,760.00	\$ 15.00	\$ 37,800.00	\$ 15.00	\$ 37,800.00	\$ 15.00	\$ 37,800.00	\$ 15.00	\$ 37,800.00
212	APWA 32 15 13	Concrete Waterways 4 feet	118	Linear Foot	\$ 130.00	\$ 15,340.00	\$ 64.00	\$ 7,552.00	\$ 65.00	\$ 7,675.00	\$ 65.00	\$ 7,675.00	\$ 85.00	\$ 10,075.00
213	APWA 32 15 13	Pavement Access Road	1	Each	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00
214	APWA 32 16 13	APWA Concrete Curb and Gutter Type A	1539	Linear Foot	\$ 80.00	\$ 123,120.00	\$ 30.00	\$ 46,170.00	\$ 30.00	\$ 46,170.00	\$ 30.00	\$ 46,170.00	\$ 30.00	\$ 46,170.00
215	APWA 32 16 13	APWA Concrete Curb Type B	3849	Linear Foot	\$ 31.00	\$ 119,310.00	\$ 30.00	\$ 115,470.00	\$ 31.00	\$ 119,310.00	\$ 31.00	\$ 119,310.00	\$ 40.00	\$ 155,960.00
216	APWA 32 16 13	Asphalt Release Curb and Gutter Type B	1	Linear Foot	\$ 85.00	\$ 85.00	\$ 30.00	\$ 30.00	\$ 30.00	\$ 30.00	\$ 30.00	\$ 30.00	\$ 30.00	\$ 30.00
217	APWA 32 16 13	Concrete Sidewalk	13442	Square Linear Foot	\$ 13.00	\$ 174,240.00	\$ 8.00	\$ 107,536.00	\$ 7.00	\$ 94,094.00	\$ 12.00	\$ 160,944.00	\$ 9.00	\$ 120,972.00
218	APWA 32 31 13	Chain Link Gate 4'-6" x 12'	4	Each	\$ 1,500.00	\$ 6,000.00	\$ 3,500.00	\$ 14,000.00	\$ 3,500.00	\$ 14,000.00	\$ 4,500.00	\$ 18,000.00	\$ 3,750.00	\$ 15,000.00
219	APWA 32 31 13	Chain Link Fence 4'-6"	306	Linear Foot	\$ 30.00	\$ 9,180.00	\$ 80.00	\$ 24,480.00	\$ 80.00	\$ 24,480.00	\$ 75.00	\$ 22,725.00	\$ 81.11	\$ 24,933.00
220	UDOT 2020 Specification 0202	Right of Way Fence, Type G (Wood Post)	1475	Linear Foot	\$ 15.00	\$ 22,125.00	\$ 24.00	\$ 35,400.00	\$ 24.00	\$ 35,400.00	\$ 13.00	\$ 19,310.00	\$ 26.15	\$ 38,571.75
221	Project Special 22 32 27	Brickwork Retaining Wall	808	Square Yard	\$ 300.00	\$ 242,400.00	\$ 55.00	\$ 44,440.00	\$ 55.00	\$ 44,440.00	\$ 30.00	\$ 24,240.00	\$ 25.00	\$ 20,200.00
222	APWA 31 05 19	Silt Fence	5240	Feet	\$ 4.00	\$ 20,960.00	\$ 3.00	\$ 15,720.00	\$ 2.50	\$ 13,100.00	\$ 2.50	\$ 13,100.00	\$ 3.00	\$ 15,720.00
223	APWA 31 05 19	Joint Protection	1	Each	\$ 100.00	\$ 100.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 250.00	\$ 250.00	\$ 1,000.00	\$ 1,000.00
224	See sheets S-001 through S-100	Bus Shelter Footing/Foundation	2	Each	\$ 25,000.00	\$ 50,000.00	\$ 20,000.00	\$ 40,000.00	\$ 21,500.00	\$ 43,000.00	\$ 10,000.00	\$ 20,000.00	\$ 22,785.00	\$ 45,570.00
225	See sheet DT-110	Pipe Baffled	1	Each	\$ 2,000.00	\$ 2,000.00	\$ 800.00	\$ 800.00	\$ 800.00	\$ 800.00	\$ 1,000.00	\$ 1,000.00	\$ 800.00	\$ 800.00
TOTAL SCHEDULE NO. 2						\$ 1,904,632.00	\$	\$ 1,797,677.50	\$	\$ 1,479,498.30	\$	\$ 1,514,253.40	\$	\$ 1,706,446.40
SCHEDULE NO. 3 - STORM DRAIN SYSTEM														
301	APWA 31 05 19	Concrete - Substation	80	Square Yard	\$ 20.00	\$ 1,600.00	\$ 10.00	\$ 800.00	\$ 6.00	\$ 480.00	\$ 24.00	\$ 1,920.00	\$ 14.00	\$ 1,120.00
302	APWA 31 05 19	Gravel - Substation	80	Square Yard	\$ 10.00	\$ 800.00	\$ 12.00	\$ 960.00	\$ 7.00	\$ 560.00	\$ 24.00	\$ 1,920.00	\$ 14.00	\$ 1,120.00
303	APWA 31 05 02	Damage Pipe - 15 inch RCP	1221	Linear Foot	\$ 110.00	\$ 134,310.00	\$ 75.00	\$ 91,575.00	\$ 70.00	\$ 85,470.00	\$ 70.00	\$ 85,470.00	\$ 85.00	\$ 103,825.00
304	APWA 32 01 00	15" End Section	3	Each	\$ 1,500.00	\$ 4,500.00	\$ 450.00	\$ 1,350.00	\$ 350.00	\$ 1,050.00	\$ 1,250.00	\$ 3,750.00	\$ 925.00	\$ 2,775.00
305	APWA 32 01 00	Shallow Catch Basin	6	Each	\$ 5,000.00	\$ 30,000.00	\$ 2,000.00	\$ 12,000.00	\$ 1,800.00	\$ 10,800.00	\$ 4,500.00	\$ 27,000.00	\$ 1,525.00	\$ 9,150.00
306	APWA 32 01 00	Concrete Drainage Structure 36 in x 50 deep	3	Each	\$ 4,500.00	\$ 13,500.00	\$ 3,500.00	\$ 10,500.00	\$ 3,000.00	\$ 9,000.00	\$ 4,500.00	\$ 13,500.00	\$ 1,525.00	\$ 4,575.00
307	APWA 32 01 00	Concrete Drainage Structure 54 in x 80 deep	3	Each	\$ 7,500.00	\$ 22,500.00	\$ 2,000.00	\$ 6,000.00	\$ 1,875.00	\$ 5,625.00	\$ 4,500.00	\$ 13,500.00	\$ 1,750.00	\$ 5,250.00
308	Project Special 21 47 10	Infiltration Basin	12076	Square Feet	\$ 2.00	\$ 24,152.00	\$ 4.00	\$ 48,304.00	\$ 5.12	\$ 61,625.00	\$ 7.75	\$ 93,660.00	\$ 6.25	\$ 75,450.00
309	APWA 31 47 00	Diameter Basin	7204	Square Feet	\$ 17.00	\$ 122,468.00	\$ 5.00	\$ 36,020.00	\$ 5.00	\$ 36,020.00	\$ 2.50	\$ 18,010.00	\$ 4.00	\$ 28,808.00
TOTAL SCHEDULE NO. 3						\$ 782,881.00	\$	\$ 528,421.00	\$	\$ 386,668.45	\$	\$ 538,384.00	\$	\$ 521,664.60
SCHEDULE NO. 4 - STRIPING AND SIGNING														
401	APWA 32 12 23	Pavement Marking Paint	49	Gallon	\$ 100.00	\$ 4,900.00	\$ 110.00	\$ 5,390.00	\$ 110.00	\$ 5,390.00	\$ 110.00	\$ 5,390.00	\$ 110.00	\$ 5,390.00
402	APWA 32 12 23	Pavement Marking (Performance Thermoplastic)	13	Each	\$ 500.00	\$ 6,500.00	\$ 450.00	\$ 5,850.00	\$ 310.00	\$ 4,030.00	\$ 114.00	\$ 1,482.00	\$ 450.00	\$ 5,850.00
403	APWA 32 01 05	Sign Type A-1 12X18 Inch	5	Each	\$ 1,000.00	\$ 5,000.00	\$ 2,000.00	\$ 10,000.00	\$ 1,500.00	\$ 7,500.00	\$ 8,000.00	\$ 40,000.00	\$ 800.00	\$ 4,000.00
404	APWA 32 01 05	Sign Type A-1 18X18 Inch	3	Each	\$ 1,500.00	\$ 4,500.00	\$ 2,000.00	\$ 6,000.00	\$ 1,500.00	\$ 4,500.00	\$ 1,500.00	\$ 4,500.00	\$ 1,500.00	\$ 4,500.00
405	APWA 32 01 05	Sign Type A-1 24X18 Inch	1	Each	\$ 750.00	\$ 750.00	\$ 1,000.00	\$ 1,000.00	\$ 750.00	\$ 750.00	\$ 1,500.00	\$ 1,500.00	\$ 1,500.00	\$ 1,500.00
406	APWA 32 01 05	Sign Type A-1 30X12 Inch	4	Each	\$ 1,000.00	\$ 4,000.00	\$ 1,000.00	\$ 4,000.00	\$ 750.00	\$ 3,000.00	\$ 700.00	\$ 2,800.00	\$ 700.00	\$ 2,800.00
407	APWA 32 01 05	Sign Type A-1 30X24 Inch	4	Each	\$ 1,500.00	\$ 6,000.00	\$ 1,000.00	\$ 4,000.00	\$ 800.00	\$ 3,200.00	\$ 1,500.00	\$ 6,000.00	\$ 1,500.00	\$ 6,000.00
408	APWA 32 01 07	Reflective Sign 18 inch x 24 Square Feet	2	Each	\$ 700.00	\$ 1,400.00	\$ 200.00	\$ 400.00	\$ 1,000.00	\$ 2,000.00	\$ 1,000.00	\$ 2,000.00	\$ 200.00	\$ 400.00
TOTAL SCHEDULE NO. 4						\$ 33,450.00	\$	\$ 41,480.00	\$	\$ 35,245.80	\$	\$ 35,679.00	\$	\$ 19,630.00
SCHEDULE NO. 5 - SEWER SYSTEM														
501	SHWRD Construction Specifications Chapters 4 & 5	6 inch PVC Pipe	600	Linear Foot	\$ 300.00	\$ 180,000.00	\$ 85.00	\$ 51,000.00	\$ 71.25	\$ 42,750.00	\$ 140.00	\$ 84,000.00	\$ 125.00	\$ 77,400.00
502	SHWRD Construction Specifications Chapters 4 & 5	4 inch PVC Pipe	632	Linear Foot	\$ 230.00	\$ 145,060.00	\$ 68.00	\$ 43,184.00	\$ 51.00	\$ 32,361.00	\$ 73.00	\$ 46,359.00	\$ 72.00	\$ 45,720.00
503	SHWRD Construction Specifications Chapters 4 & 5	6" Single Sewer Clean Out	1	Each	\$ 3,200.00	\$ 3,200.00	\$ 1,800.00	\$ 1,800.00	\$ 1,222.00	\$ 1,222.00	\$ 2,010.00	\$ 2,010.00	\$ 1,785.00	\$ 1,785.00
504	SHWRD Construction Specifications Chapters 4 & 5	6" Double Sewer Clean Out	4	Each	\$ 4,100.00	\$ 16,400.00	\$ 2,400.00	\$ 9,600.00	\$ 1,081.00	\$ 4,324.00	\$ 3,345.00	\$ 13,380.00	\$ 2,235.00	\$ 8,940.00
505	SHWRD Construction Specifications Chapters 4 & 5	4" Sewer Clean Out	2	Each	\$ 3,200.00	\$ 6,400.00	\$ 800.00	\$ 1,600.00	\$ 500.00	\$ 1,000.00	\$ 1,400.00	\$ 2,800.00	\$ 1,400.00	\$ 2,800.00
506	SHWRD Construction Specifications Chapters 4 & 5	6x6 PVC Elbow (22.5)	4	Each	\$ 300.00	\$ 1,200.00	\$ 120.00	\$ 480.00	\$ 120.00	\$ 480.00	\$ 850.00	\$ 3,400.00	\$ 300.00	\$ 1,200.00
507	SHWRD Construction Specifications Chapters 4 & 5	4x4 PVC Elbow (45)	1	Each	\$ 300.00	\$ 300.00	\$ 50.00	\$ 50.00	\$ 110.00	\$ 110.00	\$ 850.00	\$ 850.00	\$ 275.00	\$ 275.00
508	SHWRD Construction Specifications Chapters 4 & 5	6x6 PVC Elbow (45)	2	Each	\$ 500.00	\$ 1,000.00	\$ 100.00	\$ 200.00	\$ 120.00	\$ 240.00	\$ 850.00	\$ 1,700.00	\$ 300.00	\$ 600.00
509	SHWRD Construction Specifications Chapters 4 & 5	6x4 PVC WYE (45)	1	Each	\$ 600.00	\$ 600.00	\$ 500.00	\$ 500.00	\$ 177.00	\$ 177.00	\$ 850.00	\$ 850.00	\$ 340.00	\$ 340.00
510	SHWRD Construction Specifications Chapters 4 & 5	6x6 PVC WYE (45)	4	Each	\$ 600.00	\$ 2,400.00	\$ 600.00	\$ 2,400.00	\$ 180.00	\$ 720.00	\$ 850.00	\$ 3,400.00	\$ 410.00	\$ 1,660.00
511	SHWRD Construction Specifications Chapters 4 & 5	10x6 PVC WYE (45)	1	Each	\$ 900.00	\$ 900.00	\$ 1,000.00	\$ 1,000.00	\$ 1,500.00	\$ 1,500.00	\$ 850.00	\$ 850.00	\$ 7,700.00	\$ 7,700.00
TOTAL SCHEDULE NO. 5						\$ 558,630.00	\$	\$ 338,938.00	\$	\$ 211,311.00	\$	\$ 315,965.00	\$	\$ 148,439.00
SCHEDULE NO. 6 - WATER SYSTEM														
601	SHWRD Construction Standards and Drawings	16 inch Ductile Iron Pipe	1280	Linear Foot	\$ 325.00	\$ 416,000.00	\$ 1							

BID FORM

PROJECT IDENTIFICATION: **Quinn's Junction Park and Ride**

THIS BID IS SUBMITTED TO: **Park City Municipal Corporation**
 PO Box 1480
 445 Marsac Avenue
 Park City, UT 84060

- F. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with Owner in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.
- G. Bidder accepts all of the terms and conditions of the Advertisement for Bids and Instructions to Bidders, including without limitation those dealing with the disposition of bid security. This Bid will remain subject to acceptance for forty-five (45) days after the day of Bid opening. Bidder will sign and submit the Agreement with the Bonds and other documents required by the Bidding Requirements within thirty (30) days after the date of Owner's Notice of Award.
- H. In submitting this Bid, Bidder represents, as more fully set forth in the Agreement, that:

- A. Bidder has examined copies of all the Bidding Documents and of the Following Addenda (receipt of all of which is hereby included with this bid package.):

Date	Number
<u>2/10/2022</u>	<u>#1</u>
<u>2/16/2022</u>	<u>#2</u>
<u>2/22/2022</u>	<u>#3</u>
2/23/2022	#4
2/25/2022	#5
2/28/2022	#6

- B. Bidder has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and laws and regulations that in any manner may affect cost, progress, performance, or furnishing of the Work.
- C. Bidder has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, and studies which pertain to the subsurface or physical conditions at the site or otherwise may affect the cost, progress, performance or furnishing of the Work as Bidder considers necessary for the performance for furnishing of the Work and Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents; and no additional examinations, investigations, explorations, tests, reports, or similar information or data are or will be required by Bidder for such purposes.
- D. Bidder has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports, or similar information

or data with respect to said Underground Facilities are or will be required by Bidder in order to perform and furnish the Work at the Contract Price, within the Contract Time, and in accordance with the other terms and conditions of the Contract Documents.

- E. Bidder has correlated the results of all such observations, examinations, investigations, explorations, tests, reports, and studies with the terms and conditions of the Contract Documents.
- F. Bidder has given Engineer written notice of all conflicts, errors, or discrepancies that it has discovered in the Contract Documents and the written resolution thereof by Engineer is acceptable to Bidder.
- G. The Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm, or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm, or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.
- I. Bidder will complete the Work for the unit and lump sum prices as shown on the Bid Schedule and Detailed Specifications. Estimated quantities are not guaranteed and are solely for the purpose of comparison of Bids and determination of initial Contract Price. Final payment will be based upon actual quantities installed.
- J. The Project Completion Date shall be as stated on the Bid Form and the executed Construction Agreement. **The substantial completion date shall be by no later than August 31, 2022. The final project completion date will be no later than September 30, 2022.** The successful bidder, simultaneously with the execution of the Construction Agreement, will be required to furnish Performance and Payment Bonds in the amount equal to one hundred percent (100%) of the contract price, and said bonds shall be secured from a company satisfactory to Park City Municipal Corporation. Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work on time.
- K. The following documents are attached to and made a condition of this Bid:
 - A. Required bid Security in the Form of a Bid Bond.
 - B. Proposed Subcontractor list.
 - C. Contractor Qualification Sheet.
 - D. Park City Quinn's Junction Park and Ride Project Federal Clauses including Davis Bacon Wages, Civil Rights Laws and Regulations, Payroll forms, Prompt Payment Requirements, Buy America, and other requirements associated with Federal Funding **-ISSUED WITH AN ADDENDUM #1**
 - E. Permit requirements from the Utah Department of Transportation.
- L. Communications concerning this Bid shall be addressed to:

The address of bidder below:

Name of Contractor Wardell Brothers Construction

Contact Person Jordache Wardell
 Address 427 E 100 N
 City, State, Zip Morgan UT 84050
 Telephone 801-829-4999
 Fax # 801-829-3064
 E-mail jwardell@wardellbrothers.com

- M. If any person contemplating submitting a bid for the proposed contract is in doubt as to the true meaning of any part of the drawings, specifications, or other proposed contract documents, he/she may submit to the Engineer written request for an interpretation thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed documents will be made only by Addendum duly issued and a copy of such Addendum will be delivered to each person receiving a set of documents. Neither the Owner nor the Project Manager or Project Engineer will be responsible for any other explanations or interpretations of the proposed documents.
- N. The following documents are required to be submitted with the Bid:
- a. List of Proposed Subcontractors
 - b. Contractors Qualification Sheet
 - c. Bid Bond
 - d. Contractor license
- O. All submittals shall be public records in accordance with government records regulations ("GRAMA") unless otherwise designated by the applicant pursuant to UCA Section 63G-2-309, as amended."
- P. The Construction Agreement will prevail in all cases, followed by Specifications, Special Provisions, and General Conditions.

Item #	Quinns Junction Bid Description	Bid Quantity	Unit	Unit Price	Total Price
SCHEDULE NO. 1 - GENERAL REQUIREMENTS					
101	Mobilization	1	Lump Sum	\$115,000.00	\$115,000.00
102	Traffic Control	1	Lump Sum	\$25,000.00	\$25,000.00
103	Public Information Services	1	Lump Sum	\$5,600.00	\$5,600.00
<u>TOTAL SCHEDULE NO. 1</u>					\$145,600.00

SCHEDULE NO. 2 - SITE					
201	Dust Control and Watering	1000	1000 gallon	\$ 10.00	\$ 10,000.00
202	Remove guardrail	293	Linear Foot	\$ 6.00	\$ 1,758.00
203	Remove Fence	1118	Linear Foot	\$ 5.00	\$ 5,590.00
204	Granular Borrow (Plan Quantity)	166	Cubic Yard	\$ 48.00	\$ 7,968.00
205	Clearing and Grubbing (Plan Quantity)	7	Acre	\$ 6,800.00	\$ 47,600.00
206	Remove Asphalt Pavement	1005	Square Yard	\$ 16.00	\$ 16,080.00
207	Roadway Excavation (Plan Quantity)	17120	Cubic Yard	\$ 10.00	\$ 171,200.00
208	HECP Type 3	47	1000 Square Feet	\$ 350.00	\$ 16,450.00

209	Untreated Base Course (Plan Quantity)	4308	Cubic Yard	\$ 44.00	\$ 189,552.00
210	HMA-1/2 Inch	3183	Ton	\$ 81.00	\$ 257,823.00
211	Concrete Flatwork 8 Inch Thick	2428	Square Linear Foot	\$ 13.50	\$ 32,778.00
212	Concrete Waterway, 4 feet	118	Linear Foot	\$ 65.00	\$ 7,670.00
213	Pedestrian Access Ramp	4	Each	\$ 2,540.00	\$ 10,160.00
214	APWA Concrete Curb and Gutter Type A	1559	Linear Foot	\$ 36.00	\$ 56,124.00
215	APWA Concrete Curb Type P	3449	Linear Foot	\$ 23.00	\$ 79,327.00
216	Amended Release Curb and Gutter Type E	120	Linear Foot	\$ 54.00	\$ 6,480.00
217	Concrete Sidewalk	11442	Square Linear Foot	\$ 10.50	\$ 120,141.00
218	Chain Link Gate, h=6ft x w=12ft	4	Each	\$ 1,450.00	\$ 5,800.00
219	Chain Link Fence, h=6ft	356	Linear Foot	\$ 75.00	\$ 26,700.00
220	Right of Way Fence, Type G (Wood Post)	1475	Linear Foot	\$ 13.50	\$ 19,912.50
221	Bouldered Retaining Wall	808	Square Yard	\$ 282.00	\$ 227,856.00
222	Silt Fence	3240	Feet	\$ 3.35	\$ 10,854.00
223	Inlet Protection	5	Each	\$ 225.00	\$ 1,125.00
224	Bus Shelter Footings/Foundation	2	Each	\$ 10,000.00	\$ 20,000.00
225	Pipe Bollard	5	Each	\$ 1061.00	\$ 5,305.00
TOTAL SCHEDULE NO. 2					\$1,354,253.50

SCHEDULE NO. 3 - STORM DRAIN SYSTEM					
301	Geotextile - Stabilization	80	Square Yard	\$24.00	\$1,920.00
302	RipRap	8847	Square Feet	\$7.40	\$65,467.80
303	Drainage Pipe - 15 Inch RCP	1221	Linear Foot	\$76.00	\$92,796.00
304	15" End Section	3	Each	\$1,250.00	\$3,750.00
305	Shallow Catch Basin	6	Each	\$4,200.00	\$25,200.00
306	Concrete Drainage Structure 3ft to 5ft deep	3	Each	\$4,900.00	\$14,700.00
307	Concrete Drainage Structure 5ft to 9ft deep	3	Each	\$6,080.00	\$18,240.00
308	Infiltration Basin	12878	Square Feet	\$7.70	\$99,160.60
309	Detention Basin	7264	Square Feet	\$2.35	\$17,070.40
<u>TOTAL SCHEDULE NO. 3</u>					\$338,304.80

SCHEDULE NO. 4 - STRIPING AND SIGNING					
401	Pavement Marking Paint	49	Gallon	\$108.00	\$5,292.00
402	Pavement Message (Performed Thermoplastic)	13	Each	\$314.00	\$4,082.00
403	Sign Type A-1 12X18 Inch	5	Each	\$1,790.00	\$8,950.00
404	Sign Type A-1 18X9 Inch	5	Each	\$1,790.00	\$8,950.00
405	Sign Type A-1 24X18 Inch	1	Each	\$785.00	\$785.00
406	Sign Type A-1 30X12 Inch	4	Each	\$785.00	\$3,140.00
407	Sign Type A-1 30X30 Inch	4	Each	\$840.00	\$3,360.00
408	Relocate Sign Less than 20 Square Feet	2	Each	\$560.00	\$1,120.00
<u>TOTAL SCHEDULE NO. 4</u>					\$35,679.00

SCHEDULE NO. 5 - SEWER SYSTEM					
501	6 Inch PVC Pipe	600	Linear Foot	\$ 140.00	\$ 84,000.00
502	4 Inch PVC Pipe	635	Linear Foot	\$ 73.00	\$ 46,355.00
503	6" Single Sewer Clean Out	1	Each	\$ 2,010.00	\$ 2,010.00
504	6" Double Sewer Clean Out	4	Each	\$ 2,345.00	\$ 9,380.00
505	4" Sewer Clean Out	2	Each	\$ 1,400.00	\$ 2,800.00
506	6x6 PVC Elbow (22.5)	4	Each	\$ 850.00	\$ 3,400.00
507	4x4 PVC Elbow (45)	1	Each	\$ 850.00	\$ 850.00
508	6x6 PVC Elbow (45)	2	Each	\$ 850.00	\$ 1,700.00
509	6x4 PVC WYE (45)	1	Each	\$ 850.00	\$ 850.00
510	6x6 PVC WYE (45)	4	Each	\$ 850.00	\$ 3,400.00
511	10x6 PVC WYE (45)	1	Each	\$ 850.00	\$ 850.00
<u>TOTAL SCHEDULE NO. 5</u>					\$ 155,595.00

SCHEDULE NO. 6 - WATER SYSTEM					
601	16 Inch Ductile Iron Pipe	1280	Linear Foot	\$ 213.00	\$ 272,640.00
602	Reducing Ductile Iron Elbow (90)	1	Each	\$ 3,290.00	\$ 3,290.00
603	16 Inch X 16 Inch X 6 Inch Ductile Iron Tee	4	Each	\$ 5,170.00	\$ 20,680.00
604	16 Inch X 16 Inch Ductile Iron Elbow (11.25)	4	Each	\$ 4,860.00	\$ 19,440.00
605	Water Meter	1	Each	\$ 7,260.00	\$ 7,260.00
606	Fire Hydrant Assembly and Valve Box	2	Each	\$ 9,100.00	\$ 18,200.00
607	2 Inch Polyethelene Tubing	75	Linear Foot	\$ 22.00	\$ 1,650.00
608	8 Inch Ductile Iron Pipe	15	Linear Foot	\$ 107.00	\$ 1,605.00
609	16 Inch X 16 Inch Ductile Iron Elbow (45)	2	Each	\$ 4,650.00	\$ 9,300.00

610	Air and Vacuum Valve	1	Each	\$ 9,850.00	\$ 9,850.00
611	16" Butterfly Valve	1	Each	\$ 8,990.00	\$ 8,990.00
612	8" Gate Valve	1	Each	\$ 2,960.00	\$ 2,960.00
613	Cap	2	Each	\$ 1,390.00	\$ 2,780.00
614	2" Above Ground Irrigation Meter	1	Each	\$ 5,350.00	\$ 5,350.00
<u>TOTAL SCHEDULE NO. 6</u>					\$ 383,995.00

SCHEDULE NO. 7 - ELECTRICAL					
701	Adjust UDOT CCTV Electrical Service	1	Lump Sum	\$10,000.00	\$10,000.00
702	Parking Lot Lighting	1	Lump Sum	\$396,400.00	\$396,400.00
703	Electric Vehicle Charging Station	1	Lump Sum	\$95,000.00	\$95,000.00
704	Electric Bus Charging Station	1	Lump Sum	\$450,000.00	\$450,000.00
TOTAL SCHEDULE NO. 7					\$951,400.00
SCHEDULE NO. 8 - LANDSCAPING					
801	Geotextile - Weed Barrier	2105	Square yard	\$13.00	\$27,365.00
802	Strip, Stockpile, and Spread Top Soil (Plan Quantity)	2105	Square Yard	\$6.00	\$12,630.00
803	Broadcast Seed	3	Acre	\$2,500.00	\$7,500.00
804	Shrub/ Trees	1	Lump Sum	\$40,150.00	\$40,150.00
TOTAL SCHEDULE NO. 8					\$87,645.00
BID TOTAL					\$3,452,472.32

(If there is a conflict between the written and numerical amount, the written amount shall supersede)

The undersigned, in compliance with your invitation for bids for the Park City Bus Shelter Improvements, in Park City, Utah, having examined the Drawings and Specifications and related Documents and the site of the proposed work and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of labor, hereby offer to furnish all labor, materials and supplies as required for the work in accordance with the Contract Documents as specified and within the time set forth and at the price stated below. This price is to cover all expenses incurred in performing the work required under the Contract Documents of which this proposal is a part.

SUBMITTED ON March 3rd 2022

Utah Contractor's License Number 5521203-5501

If BIDDER is:

An Individual

By _____ (SEAL)
(Individual's Name)

Doing business as: _____

Business address: _____

Phone Number: _____

A Partnership

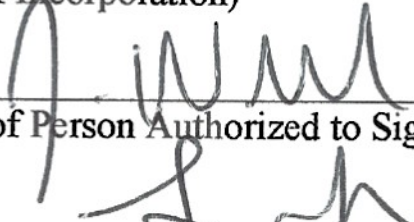
By _____ (SEAL)
(Individual's Name)

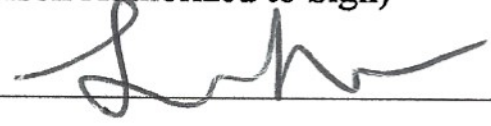
Wardell Brothers Construction (General Partner)
Business Address: 427 E 100 N Morgan UT 84050
Phone Number: 801-829-4999

A Corporation

By Wardell Brothers Construction (Corporate Seal)
(Corporation Name)

Utah
(State of Incorporation)

By 
(Name of Person Authorized to Sign)

Attest 
(Secretary)

Business Address: 427 E 100 N Morgan UT 84050
Phone Number: 801-829-4999

AIA® Document A310™ – 2010

Bid Bond

CONTRACTOR:

(Name, legal status and address)

Wardell Brothers Construction, Inc.
P.O. Box 827
Morgan, UT 84050

SURETY:

(Name, legal status and principal place of business)

Atlantic Specialty Insurance Company
605 Hwy 169 North, Suite 800
Plymouth, MN 55441

OWNER:

(Name, legal status and address)

Park City Municipal Corporation
PO Box 1480, 445 Marsac Avenue
Park City, Utah 84060

BOND AMOUNT:

Five Percent (5%) of amount bid

PROJECT:

(Name, location or address, and Project number, if any)

Quinn's Junction Park and Ride
US-40 Park City, Utah

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

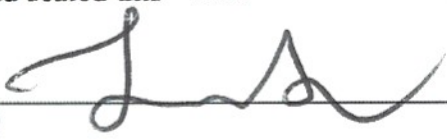
Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 24th day of February, 2022


(Witness)
LEAVITT INSURANCE & CENTRAL BOND SERVICES, INC.
746 EAST WINCHESTER ST., SUITE 120
(Witness)
SALT LAKE CITY, UT 84107

Wardell Brothers Construction, Inc.

(Principal)

(Seal)

(Title)

Atlantic Specialty Insurance Company

(Surety)

(Seal)

(Title) David T. Smedley - Attorney-in-Fact

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

Init.

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Power of Attorney

KNOW ALL MEN BY THESE PRESENTS, that ATLANTIC SPECIALTY INSURANCE COMPANY, a New York corporation with its principal office in Plymouth, Minnesota, does hereby constitute and appoint: **Alan C. Anderson, Robyn B. Jensen, Brett Palmer, David T. Smedley, Michael R. Vowles, Danise Worwood**, each individually if there be more than one named, its true and lawful Attorney-in-Fact, to make, execute, seal and deliver, for and on its behalf as surety, any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof; provided that no bond or undertaking executed under this authority shall exceed in amount the sum of: **unlimited** and the execution of such bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof in pursuance of these presents, shall be as binding upon said Company as if they had been fully signed by an authorized officer of the Company and sealed with the Company seal. This Power of Attorney is made and executed by authority of the following resolutions adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

Resolved: That the President, any Senior Vice President or Vice-President (each an "Authorized Officer") may execute for and in behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and affix the seal of the Company thereto; and that the Authorized Officer may appoint and authorize an Attorney-in-Fact to execute on behalf of the Company any and all such instruments and to affix the Company seal thereto; and that the Authorized Officer may at any time remove any such Attorney-in-Fact and revoke all power and authority given to any such Attorney-in-Fact.

Resolved: That the Attorney-in-Fact may be given full power and authority to execute for and in the name and on behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and any such instrument executed by any such Attorney-in-Fact shall be as binding upon the Company as if signed and sealed by an Authorized Officer and, further, the Attorney-in-Fact is hereby authorized to verify any affidavit required to be attached to bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof.

This power of attorney is signed and sealed by facsimile under the authority of the following Resolution adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

Resolved: That the signature of an Authorized Officer, the signature of the Secretary or the Assistant Secretary, and the Company seal may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing an Attorney-in-Fact for purposes only of executing and sealing any bond, undertaking, recognizance or other written obligation in the nature thereof, and any such signature and seal where so used, being hereby adopted by the Company as the original signature of such officer and the original seal of the Company, to be valid and binding upon the Company with the same force and effect as though manually affixed.

IN WITNESS WHEREOF, ATLANTIC SPECIALTY INSURANCE COMPANY has caused these presents to be signed by an Authorized Officer and the seal of the Company to be affixed this twenty-seventh day of April, 2020.

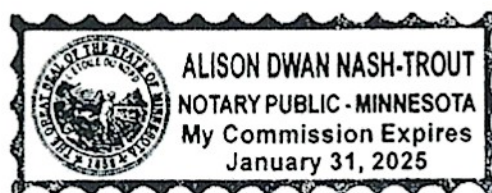
STATE OF MINNESOTA
HENNEPIN COUNTY



By

Paul J. Brehm, Senior Vice President

On this twenty-seventh day of April, 2020, before me personally came Paul J. Brehm, Senior Vice President of ATLANTIC SPECIALTY INSURANCE COMPANY, to me personally known to be the individual and officer described in and who executed the preceding instrument, and he acknowledged the execution of the same, and being by me duly sworn, that he is the said officer of the Company aforesaid, and that the seal affixed to the preceding instrument is the seal of said Company and that the said seal and the signature as such officer was duly affixed and subscribed to the said instrument by the authority and at the direction of the Company.



Notary Public

I, the undersigned, Secretary of ATLANTIC SPECIALTY INSURANCE COMPANY, a New York Corporation, do hereby certify that the foregoing power of attorney is in full force and has not been revoked, and the resolutions set forth above are now in force.

Signed and sealed. Dated 24th day of February, 2022.

This Power of Attorney expires
January 31, 2025



Kara Barrow, Secretary

Please direct bond verifications to surety@intactinsurance.com

CONTRACTOR QUALIFICATION SHEET

(List similar projects completed by the contractor over the past three (3) years)

Date 3/3/21

SEE ATTACHED.

NAME OF PROJECT	DOLLAR AMT OF PROJECT	OWNER REFERENCE (NAME AND TELEPHONE NO.)	COMPLETION DATE



Wardell Brothers Construction

Work Experience 2019

Job	Job Name	Description	Owner	Engineer	Comp Date	Dollar Value of Work Completed	Number of Dollar Amount in Change Orders	Reason for Change Orders	Project Manager	Project Super	Completeness in Contract time?	Claim or Dispute?	Description of Similarities	Davis-Bacon Act
0803	FLAGSTAFF	Earthwork for lodge in Park City.	Talisker/Okland Const.	Mike Despaigne 801 870 0068	2008	\$ 789,480.00	\$74,280	Design Change	Jordache Wardell	Dallas Wardell	Yes	None	Exported 50,000 CY of cut material	NO
0814	DUTCH JOHN AIRPORT RUNWAY IMP.	Construct airport runway	Daggett County/Uintah Engineering	Chris Clark 435 789 1017	2009	\$ 1,424,137.24	-\$49,460	Design Change	Jordache Wardell	Roger Wardell	Yes	None	Move 40,000 CY of material onsite	NO
0816	US-40 FORT DUCHESNE	Roadway Widening	UDOT/Civco Engineering	Troy Ostler 435 789 5448	2009	\$ 1,802,463.26	\$349,844	Quantity Increase	Jordache Wardell	Simoron Wardell	Yes	None	Move 25000 CY of material	YES
0901	ESCALANTE CITY SPRING TRANS.	Install 88000 LF of 10 and 8 inch waterline	Escalante City/Earthfax Engineering	Gene Player 801 561 1555	2009	\$ 1,729,641.00	\$282,255	Quantity Increase	Jordache Wardell	Moroni Wardell	Yes	None	Install 88,000 LF of underground	NO
0902	US-6; TIE FORK REST AREA	Roadway Widening	UDOT/UDOT	Matt Parker 801 782 0814	2009	\$ 776,840.00	\$148,454	Design Change	Jordache Wardell	Dallas Wardell	Yes	None	Import 10000 tons of roadbase	YES
1007	DUTCH JOHN WATER SYSTEMS IMP.	Install 12000 LF of water line	County/Uintah Engineering, 435-784-3154	Chris Clark 435 789 1017	2011	\$ 849,700.37	\$10,122	Added Work	Jordache Wardell	Dallas Wardell	Yes	None	Install 12000 feet of underground	YES
1010	SR 147; 1800 E TO US 89	Roadway Widening	UDOT/UDOT	Julie Birtcher 801 782 0814	2011	\$ 676,053.00	\$60,639	Design Change	Jordache Wardell	Dallas Wardell	Yes	None	Roadway widening, Davis Bacon UDOT	YES
1012	LIBERTY CANAL PIPING	Install 36000 LF of 32" Canal Pipe	Liberty Ditch Company/Wayne Beck (208) 847-8941	Korey Walker 801 420 3929	2011	\$ 682,789.00	-\$23,945	Design Change	Jordache Wardell	Moroni Wardell	Yes	None	Install 36000 feet of irrigation piping	YES
1113	SEEP RIDGE SEGMENT 3	Install storm drain culverts and box culvert. 115480 CY of Roadway Excavation	Uintah SSD/Civco Engineering, 435-789-4636	Troy Ostler 435 789 5448	2012	\$ 578,950.00	\$23,079	Design Change	Jordache Wardell	Simoron Wardell	Yes	None	Install storm drain culverts and box culvert. 115480 CY of Roadway Ex	NO
1203	PROFESSIONAL CLASSROOM WEBERS	Earthwork and utilities for new Weber State Campus	Weber State/Big-D	John Kemp 801 415 6000	2012	\$ 2,962,904.00	\$1,037,065	Design Build project	Jordache Wardell	Moroni Wardell	Yes	None	Site cut and fill 125,000 CY. Storm Drain Install	NO
1206	SR 36 MP 51.02 SOUTH MTN ROAD	Roadway Widening	UDOT/UDOT	Bryan Chamberlain 801 910 2530	2012	\$ 633,706.00	\$66,156	Design Change	Jordache Wardell	Simoron Wardell	Yes	None	Roadway Widening	YES

1305	SR 248 Richardson Flat to RD Val	Roadway Widening	UDOT/Udot Jon Ogden 801 910 2583	Matt Zundel 801 910 2581	2013	\$	1,352,840.00	\$54,453	Quantity increase	Jordache Wardell	Dallas Wardell	Yes	None	Roadway Widening	YES
1307	Nichols Road Widening	Roadway Widening	Fruit Heights City Brandon Green 801- 546-0861	Brandon Jones 801 476 9768	2014	\$	1,236,245.00	\$74,968	Design Change	Jordache Wardell	Dallas Wardell	Yes	None	Roadway Widening	NO
1410	Rasmussen Road Trail	Construct asphalt trail	Snyderville Basin Rec District-Bob Radke 435 649 1564 Ex19	Bob Radke	2014	\$	1,012,224.00	\$38,146	Design Change	Jordache Wardell	Moroni Wardell	Yes	None	Construct asphalt trail	NO
1415	1975 N Storm Drain and Widening	Storm drain and widening	Plain City Corp. Mitch 801 731 4908	Wasatch Civil- Brad Jensen 801 775 9191	2014	\$	451,121.00	\$15,687	Added Work	Jordache Wardell	Moroni Wardell	Yes	None	Storm drain and widening	NO
1422	IHC Park City	Excavation & Grading	IHC		2015	\$	937,450.00	\$165,537	Added Work	Jordache Wardell	Moroni Wardell	Yes	None	Storm drain and material moved onsite, 49800 Tons Imported.	NO
1501	Welby Rail Yard	Construct Rail Spur	Savage Industries		2015	\$	566,688.00	\$164,669	Quantity increase	Jordache Wardell	Simoron Wardell	Yes	None	Site cut and fill 45000 CY	NO
1502	Lone Peak Parkway	Construct Roadway	Draper City		2015	\$	1,283,700.00	\$249,664	Design Change	Jordache Wardell	Dallas Wardell	Yes	None	Roadway Widening	NO
1503	Silver Eagle Roadway & Pipe Project	Construct Roadway/Install pipe	Silver Eagle Refinery		2015	\$	675,151.00	\$0	None	Jordache Wardell	Simoron Wardell	Yes	None	Misc hourly work	NO
1504	I-80;Judd & Hobson Lane Bridge	Roadway Excavation	UDOT/Drycreek		2015	\$	63,978.00	\$0	None	Jordache Wardell	Moroni Wardell	Yes	None	Backfill concrete structures	YES
1505	Cochrane Lane Roadway Imp	Roadway Reconstruction	Draper City		2015	\$	451,049.00	\$17,427	Design Change	Jordache Wardell	Dallas Wardell	Yes	None	Move 5000 CY of material.	NO
1506	2015 Solids Removal	Transport Solids	Metropolitan Water Dist.		2015	\$	43,082.00	\$0	None	Jordache Wardell	Simoron Wardell	Yes	None	Small Export	NO
1507	Traverse Ridge Road Widening	Roadway Widening	Draper City		2015	\$	1,162,668.00	\$6,873	Design Change	Jordache Wardell	Dallas Wardell	Yes	None	Move 25000 CY of roadway material, import 18000 Tons	NO
1508	Weber River Scour Project	Install Riprap	Weber County	Jared Anderson 801 829 8238	2015	\$	67,151.00	\$0	None	Jordache Wardell	Moroni Wardell	Yes	None	Install riprap rock	NO
1509	Valley Lake Storm Drain Project	Install storm drain	Weber County	Jared Anderson 801 829 8238	2015	\$	224,834.00	\$19,313	Added Work	Jordache Wardell	Moroni Wardell	Yes	None	Install 24-42 inch storm drain pipe.	NO
1510	2015 Morgan Sewer Ponds	Construct Sewer	Morgan	Jamie Grandpre 801 821 6324	2015	\$	185,018.00	\$0	None	Jordache Wardell	Jordache Wardell	Yes	None	Misc hourly work	NO

1511	Millennium Trail, PCCC Project	Construct asphalt trail	Snyderville	Bob Radke 435 649 1564 Ex19	2015	\$	246,484.00	\$19,078	Quantity increase	Jordache Wardell	Moroni Wardell	Yes	None	Construct asphalt trail	NO
1512	Welby Rail Yard Water Line	Install Water Line	Savage Industries		2015	\$	139,044.00	\$0	None	Jordache Wardell	Simoron Wardell	Yes	None	Install Waterline	NO
1513	Sandy Canal Trail/11000-11400 S	Construct asphalt trail	Sandy City		2015	\$	253,371.00	\$40,981	Design Change	Jordache Wardell	Dallas Wardell	Yes	None	Construct asphalt trail	NO
1601	US-40;Bridge Preservation	Bridge Preservations	UDOT/Granite		2016	\$	562,854.19	\$0	None	Jordache Wardell	Simoron Wardell	Yes	None	Bridge backfilling	YES
1602	Skyline Drive	Construct Roadway	Weber County Jared Anderson 801 829 8238	CRS Engineers Craig 801 330 3143	2016	\$	2,522,000.00	\$125,400	Design Change	Jordache Wardell	Dallas Wardell	Yes	None	Move 110,000 CY of roadway material. Install 3500 feet of 24-48" storm drain	NO
1603	Morgan Co Airport Runway Rehab	Construct Runway Apron	Morgan County Mike Waite 801 821 0640	Shawn Shuler 801 618 7911	2016	\$	947,850.00	\$125,000	Design Change	Jordache Wardell	Dallas Wardell	Yes	None	Move 55000 CY of material offsite and import backfill	NO
1604	Old Highway Trail Project	Construct asphalt trail	Morgan County	Mike Waite 8018210640	2016	\$	97,095.47	\$0	None	Jordache Wardell	Moroni Wardell	Yes	None	Construct asphalt trail	NO
1605	South Mtn Rd - East Depot Section	Construct roadway	Tooele County Rod Thompson 435 830 2016	PEG Ryan Kitchen 801 870 8814	2016	\$	639,338.00	\$0	None	Jordache Wardell	Simoron Wardell	Yes	None	Move 125,000 CY of roadway material for new roadway.	NO
1606	Highway 224 Trail Project	Construct asphalt trail	Snyderville Basin Rec District	Bob Radke 435 649 1564 Ex19	2016	\$	409,677.20	\$0	None	Jordache Wardell	Moroni Wardell	Yes	None	Construct asphalt trail	NO
1607	Solids Removal Project 2016	Removal of water treatment solids residuals	Metropolitan Water Dist.		2016	\$	41,543.03	\$0	None	Jordache Wardell	Moroni Wardell	Yes	None	Removal of water treatment solids residuals	NO
1608	UDOT Morgan Maintenance Facility	Earthwork, underground utilities	Brubaker Construction	Bob Greer 801 891 8686	2016	\$	731,623.55	\$115,000	Design Change	Jordache Wardell	Dallas Wardell	Yes	None	Move 25000 CY of cut material. Install 2500 feet of storm drain	NO
1609	2016 Industrial Road Reconstruction	Construct roadway	Morgan City	Jamie Grandpre 801 821 6324	2016	\$	185,309.03	\$0	None	Jordache Wardell	Dallas Wardell	Yes	None	Construct asphalt trail	NO
1610	Ogden Bay - North Run Wetlands	Constructed Wildlife Habitat	Utah Div of Wildlife Resources	Chris Christiansen 801 910 9480	2016	\$	185,550.00	\$0	None	Jordache Wardell	Simoron Wardell	Yes	None	Constructed Wildlife Habitat	NO
1611	Frito Lay Improvements	Drainage repair	Savage Industries		2016	\$	87,845.00	\$0	None	Jordache Wardell	Moroni Wardell	Yes	None	Drainage Repair	NO

1704	650 West Farmington	2.5 Miles of roadway reconstruction	Farmington City	Chad Boshell 801 864 0917	2017	\$	2,710,000.00	\$358,655	Design Change/Added quantity	Jordache Wardell	Dallas Wardell	Yes	None	Move 65000 CY Of material onsite. Install 4500 feet of storm drain	NO
1701	Americold(200,000 SF Building Pad in Clearfield)	150000 CY of earthwork and 6000 feet of utilites	Primus Builders Dean 678 236 2428	Christian Michaelsen 801 710 9225	2017	\$	2,482,293.00	\$548,001	Design Build project	Jordache Wardell	Dallas Wardell	Yes	None	150000 CY of earthwork and 6000 feet of utilites	NO
1702	Old Maple Farms	4000 feet of utilites. 2500 feet of roadway	Ford Development Cole Rowser 801 829 8440	Nate Reeves 801 458 8006	2017	\$	1,405,500.00	\$0	None	Jordache Wardell	Simoron Wardell	Yes	None	Roadway and storm drain	NO
1708	Nordic Valley Slide Repair	7500 Tons of import and 700' of road reconstruction	Weber County	Jared Anderson 801 829 8238	2017	\$	390,780.00	\$0	None	Jordache Wardell	Moroni Wardell	Yes	None	Repair landslide	NO
1801	US 40 Daniels Canyon	40000 tons of import. 5 miles of road widening	UDOT	Jason Richins. 801 360 4985	2018	\$	3,948,521.00	\$625,480	Change/Increased Quantity	Jordache Wardell	Dallas Wardell	Yes	None	Import 40,000 tons.	YES
1802	700 S 1000 W Clearfield	Roadway Reconstruction	Clearfield City	CEC	2018	\$	1,211,079.00	\$113,189		Jordache Wardell	Dallas Wardell	Yes	None		NO
1803	Island Road Substation	Roadway Reconstruction	Morgan City	Jamie Grandpre 801 821 6324	2018	\$	67,732.00	\$0	None	Jordache Wardell	Moroni Wardell	Yes	None		NO
1804	Old Maple Farms	Utilities & Roadway	Ford Development Cole Rowser 801 829 8440	Nate Reeves 801 458 8006	2018	\$	288,937.00	\$0	None	Jordache Wardell	Simoron Wardell	Yes	None		NO
1805	125 North Street	Roadway Reconstruction	Morgan City	Jones & Assoc	2018	\$	747,387.00	\$82,896		Jordache Wardell	Dallas Wardell	Yes	None		NO
1806	Morgan Waste Water Treatment Facility	Waste Water Treatment Facility	Morgan City		2018	\$	382,965.00	\$25,398		Jordache Wardell	Dallas Wardell	Yes	None		NO
1807	1050 E Street Rebuild	Roadway Reconstruction	South Ogden City	Wasatch Civil-Brad Jensen 801 775 9191	2018	\$	234,500.00	\$0	None	Jordache Wardell	Moroni Wardell	Yes	None		NO
1808	Black Willow Subdivision	Utilities & Roadway	John Adkins	Shane McFarland 801 837 8783	2018	\$	648,113.00	\$69,826		Jordache Wardell	Dallas Wardell	Yes	None		NO
1809	Heather Meadows Subdivision	Utilities & Roadway	Clear Creek Development, LLC		2018	\$	262,440.00	\$13,645		Jordache Wardell	Moroni Wardell	Yes	None		NO
1810	Whittier Estates Subdivision	Utilities & Roadway	Utah Land Guys		2018	\$	938,006.00	\$52,806		Jordache Wardell	Dallas Wardell	Yes	None		NO

1811	Mutton Hollow Subdivision	Roadway Reconstruction, storm drain modifications	Davis County	ESI Engineering	2018	\$	869,334.00	\$97,195		Jordache Wardell	Moroni Wardell	Yes	None		NO
1812	Island Circle Subdivision	Utilities & Roadway	Paul Freed		2018	\$	67,390.00	\$10,085		Jordache Wardell	Moroni Wardell	Yes	None		NO
1813	Harold Crane WMA	Dike Restoration, Levee/Roadway Gravel Surfacing	DFCM State of Utah	Equinox Engineering	2018	\$	386,330.00	\$15,000		Jordache Wardell	Moroni Wardell	Yes	None		NO
1814	Turner Subdivision	Utilities & Roadway	Eric Turner		2018	\$	62,770.00	\$8,480		Jordache Wardell	Moroni Wardell	Yes	None		NO
1815	5350 S Road Reconstruct	Roadway Reconstruction	Washington Terrace City	Jones & Assoc	2018	\$	226,581.00	\$56,407		Jordache Wardell	Dallas Wardell	Yes	None		NO
1901	Iowa Springs Box Culvert	Off-System Bridge	UDOT		2019	\$	644,971.00	\$1,828		Jordache Wardell	Moroni Wardell	Yes	None		YES
1902	4700 West Hooper	Utilities & Roadway	Hooper City	JUB Engineers	2019	\$	2,568,621.00	\$245,271		Jordache Wardell	Moroni Wardell	Yes	None		YES
1903	Aiport Storm Drain Road	Reconstruct, Relocate Taxiways	Ogden City Corporation	Airport Development Group	2019	\$	220,609.00	\$ 30,816.00		Jordache Wardell	Moroni Wardell	Yes	None		NO
1904	Shepard Lane	Asphalt Replacement, Storm Drain, Curb & Gutter	Kaysville City	JUB Engineers	2019	\$	1,071,028.00	\$ 189,962.00		Jordache Wardell		Yes	None		NO
1905	Jeremy Ranch Frontage Roads		Dry Creek Structures		2019	\$	3,048,153.00	\$ 271,956.00		Jordache Wardell	Dallas Wardell	Yes	None		NO
1906	West Porterville Pipeline	25,900 feet 20"-10" Fused HDPE, 35 Turnout Services	West Porterville Irrigation Co	JUB Engineers	2020	\$	1,513,328.00	\$ 28,476.00		Jordache Wardell	Moroni Wardell	Yes	None		NO
1908	Kilby Underpass		Dry Creek Structures		2019	\$	339,578.00	\$ -		Jordache Wardell	Dallas Wardell	Yes	None		NO
2101	180 Truck Parking	Reconstruct 180 rest area. 15000 Tons of import	UDOT	UDOT Jon Ogden 801 910 2580	2021	\$	1,458,800.00	\$456,581	Added Work	Jordache Wardell	Dallas Wardell	Yes	None		YES
2004	US 40 Bridges at Mayflower	75000 CV export, 50000 tons import	UDOT	Wayne Cummings 8013197792	2021	\$	2,485,540.00	\$121,400	Added Work	Jordache Wardell	Dallas Wardell	Yes	None		YES

NOTICE:
THIS LICENSE MUST BE POSTED
IN A CONSPICUOUS PLACE

Business License

The below named person or firm is hereby granted a license to do business as stated below in Morgan City, Utah, subject to provisions of the Business License Ordinance of Morgan City and subsequent amendments relating to the above for the period indicated.

NAME: WARDELL BROTHERS CONSTRUCTION

TO: PO BOX 827

MORGAN, UT 84050-0827

MORGAN CITY
State of Utah
90 W. Young Street • P.O. Box 1085
Morgan, Utah 84050-1085
(801) 829-3461

License No. 711
DATE ISSUED: 01/06/2022

RENEWAL DATE: 01/06/2022

LICENSE PERIOD: 01/01/2022 - 12/31/2022

BUSINESS LOCATION: 427 E 100 N

TYPE OF BUSINESS: GENERAL LICENSE

Stephanie Haver

BUSINESS LICENSE OFFICIAL

THIS LICENSE IS NOT TRANSFERABLE

STATE OF UTAH
DEPARTMENT OF COMMERCE
DIVISION OF OCCUPATIONAL & PROFESSIONAL LICENSING
ACTIVE LICENSE

EFFECTIVE DATE: 05/21/2008

EXPIRATION DATE: 11/30/2023

ISSUED TO: WARDELL BROTHERS
CONSTRUCTION, INC.
PO BOX 827
MORGAN UT 84050



REFERENCE NUMBER(S), CLASSIFICATION(S) & DETAIL(S)

5521203-5501 Contractor With LRF

DBAs: None Associated

B100, E100

SEE ATTACHED LIST

LIST OF PROPOSED SUBCONTRACTORS

	SUBCONTRACTOR	ADDRESS	TELEPHONE	PORTION OF WORK
1.	BT GALLEGOS	PO Box 598	435-723-5703	Storm Drain
2.				
3.				
4.				
5.				
6.				



WARDDELL BROTHERS CONSTRUCTION
P.O. BOX 827 | 427 EAST 100 NORTH
MORGAN, UTAH 84050
801.829.4999 | www.wardellbrothers.com

Subcontractor Participation Report

Project Name:	QUINNS JUNCTION PARK AND RIDE	Customer:	PARK CITY MUNICIPAL CORPORATION
Job Number:		Billing Address:	445 MARSAC AVENUE PARK CITY, UT 84060
Bid As:		Phone:	
Estimator:		Contact:	
Project Address:		Target Bid Price:	\$3,420,222.25
Completion Date:			

Subcontractor Information

Subcontractors:		9	Total Subcontracted †:	\$1,797,604.81	% of Target Price:	52.56%			
Company Name	Contact	Phone	Amount	% of Price	License #	Address	City	State	Zip
B.T. GALLEGOS CONSTRUCTION CO.		(435) 723-5703	\$59,685.00	1.75%		P.O. BOX 598	BRIGHAM CITY	UT	84302
CACHE VALLEY ELECTRIC		(801) 908-6666	\$904,402.84	26.44%		1338 S GUSTIN RD	SALT LAKE CITY	UT	84104
CMK CONSTRUCTION			\$212,252.50	6.21%		5615 S 6800 W	HOOPER	UT	84315
CUSTOM FENCE CO., INC.		(801) 546-2161	\$48,837.44	1.43%		293 NORTH 650 WEST	KAYSVILLE	UT	84037
EARTHWORKS LANDSCAPE		(435) 640-9945	\$204,424.00	5.98%		3856 PACK SADDLE CIRCLE	PARK CITY	UT	84098
GENEVA ROCK		(801) 765-7800	\$244,408.00	7.15%		1565 W 400 N	OREM	UT	84057
PECK STRIPING, INC.		(801) 965-9995	\$9,926.43	0.29%		PO BOX 271070	SALT LAKE CITY	UT	84127-1070
PECK TRAFFIC SAFETY, LLC		(801) 965-9995	\$24,375.00	0.71%		P O BOX 271070	SALT LAKE CITY	UT	84127
TERRAWORKS CONSTRUCTION AND LANDSCAPING			\$85,993.60	2.51%		PO BOX 634	BOUNTIFUL	UT	84011

Legend: † denotes that the Total Subcontracted value may include "Quick" subcontracted cost.

Memorandum

DATE: 2/2/22

TO: Park City Municipal Corporation

FROM: Tori Berry

Civil Rights Manager

SUBJECT: Quinns Junction parking lot, Park City

DBE GOAL

Please set the following goal on this project:

DAVIS BACON WAGE RATES "ARE" REQUIRED

DBE Goal Base 1.00% *SEE ATTACHED*

Your attention to the DBE goal is appreciated. This memo is valid for 6 months or if changes are made to scope of work, it will need to be resubmitted to Civil Rights for revision. If you have any questions or suggestions, please call the Civil Rights Office at (801) 965-4208.

DBE PARTICIPATION



WARDELL BROTHERS CONSTRUCTION

P.O. BOX 827 | 427 EAST 100 NORTH

MORGAN, UTAH 84050

801.829.4999 | www.wardellbrothers.com

Minority Participation Detail Report

Project Name: QUINNS JUNCTION PARK AND RIDE	Customer: PARK CITY MUNICIPAL CORPORATION
Job Number:	Billing Address: 445 MARSAC AVENUE
Bid As:	PARK CITY, UT 84060
Estimator:	Phone:
Project Address:	Contact:
Completion Date:	

Minority Summary

Minority Type	Required \$	Required %	Current \$	Current %	Difference \$	Difference %
DBE	\$34,415.01	1.00%	\$59,685.00	1.73%	\$25,269.99	0.73%
Target Bid Price					\$3,441,501.05	

Disadvantaged Business Enterprise (DBE)

Description	Assigned	Amount \$	Participation %
Total Subcontractor Quotes		\$59,685.00	1.73%
B.T. GALLEGOS CONSTRUCTION CO., BRIGHAM CITY, UT	DBE	\$59,685.00	1.73%
Total DBE Participation:		\$59,685.00	1.73%
Required vs. Current:		\$25,269.99	0.73%



WARDELL BROTHERS CONSTRUCTION
P.O. BOX 827 | 427 EAST 100 NORTH
MORGAN, UTAH 84050
801.829.4999 | www.wardellbrothers.com

Selected Subcontractor Analysis Report

Project Name:	QUINNS JUNCTION PARK AND RIDE	Customer:	PARK CITY MUNICIPAL CORPORATION
Job Number:		Billing Address:	445 MARSAC AVENUE
Bid As:			PARK CITY, UT 84060
Estimator:		Phone:	
Project Address:		Contact:	
Completion Date:			

Subcontractor Information

Company Name	Location	Phone	Fax	Minority
B.T. GALLEGOS CONSTRUCTION CO.	P.O. BOX 598 BRIGHAM CITY, UT 84302	(435) 723-5703		DBE

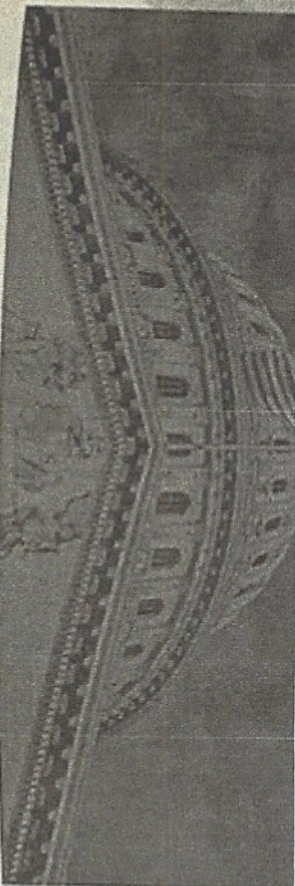
Item and Task Prices

Description	Quantity	UM	Unit Price	Total Price
RFQ Group: Storm Drain				
Subcontractor Pipe Installation-Storm Drain (303 - Drainage Pipe - 15 Inch RCP) <i>PARTIAL - LABOR ONLY</i>	1,221.00	LF	\$35.00	\$42,735.00
Subcontractor Structure Installation-Storm Drain (304 - 15" End Section) ¹¹	3.00	EACH	\$400.00	\$1,200.00
Subcontractor Structure Installation-Storm Drain (305 - Shallow Catch Basin) ¹¹	6.00	EACH	\$1,200.00	\$7,200.00
Subcontractor Structure Installation-Storm Drain (306 - Concrete Drainage Structure 3FT To 5FT Deep) ¹¹	3.00	EACH	\$1,300.00	\$3,900.00
Subcontractor Structure Installation-Storm Drain (307 - Concrete Drainage Structure 5FT To 9FT Deep) ¹¹	3.00	EACH	\$1,550.00	\$4,650.00
Total Quoted Price:				\$59,685.00
Plug Total For Items Not Quoted:				\$0.00
Adjustments:				\$0.00
Total Adjusted Price:				\$59,685.00

RFQ Notes:

- Please return RFQ's by February 22nd 2022.

Legend: ^P denotes that the value is a plug price.



Utah Unified Certification Program

Certifies that:

B T Gallegos Construction

Has successfully satisfied 49 CFR Part 26 criteria for continued certification as a disadvantaged owned business in the:

Disadvantaged Business Enterprise Program

Certificate Expires: 8-15-2022

Judy Romrell

Judy Romrell - UUCP CERTIFYING OFFICIAL

DIVISION OF OCCUPATIONAL & PROFESSIONAL LICENSING

ACTIVE LICENSE

EFFECTIVE DATE: 10/12/2006

EXPIRATION DATE: 11/30/2023

ISSUED TO:

B T Gallegos Construction Company Inc
PO BOX 598
BRIGHAM CITY UT 84302



REFERENCE NUMBER(S), CLASSIFICATION(S) & DETAIL(S)

5M175213b42...



ADDENDUM

ADDENDUM NO. 1 TO THE PLANS AND SPECIFICATION FOR THE *"Quinn's Junction Park and Ride"*

Bid Date: February 24, 2022

The following additions and/or correction shall become a part of the Contract Document and Construction Plans and Specifications for the subject project.

1. Updated Supplementary Conditions that included two documents
 - a. Civil Rights Requirements for Federal Aid Projects
 - b. DBE Goal for the Project
2. Updated measurement and Payment
 - a. Bid Item #703 – Electric Vehicle Charging Station
 - b. Bid Item #704 – Electric Bus Charging Station

Notice to all Contractor submitting bids for this work and to all contract document holders.

You are hereby notified of the following changes to the Contract Documents, more specifically, to the Bid Proposal Package and the construction plans for this project. This addendum shall supersede the original contract documents wherein it contradicts the same and shall take precedence over anything to the contrary therein. All conditions remain the same.

Approved by:

A handwritten signature in blue ink, appearing to read "Gabriel Shields".

City Engineer

*Gabriel Shields on behalf of
John Robertson*

10 Feb 2022

Date

NOTICE: This addendum shall be acknowledged by the Contractor submitting the bid in the space provided below and this addendum shall be submitted with the Contractor's Bid Proposal as well as submitted for acknowledgment of receipt to Park City Municipal Corporation. Failure to acknowledge may result in the proposal being rejected as not responsive.

Sign and email or turn in this sheet to:
melanie.jackson@parkcity.org

Contractor: _____

A handwritten signature in blue ink, consisting of a stylized "C" followed by a long horizontal stroke.

Updated 2-2022



ADDENDUM

ADDENDUM NO. 1 TO THE PLANS AND SPECIFICATION FOR THE *"Quinn's Junction Park and Ride"*

Bid Date: February 24, 2022

The following additions and/or correction shall become a part of the Contract Document and Construction Plans and Specifications for the subject project.

1. Remove and replace "Quinns Junction Park and Ride Bid Documents 2022-01-26" with "Quinns Junction Park and Ride Bid Documents 2022-02-09 Addendum 1"

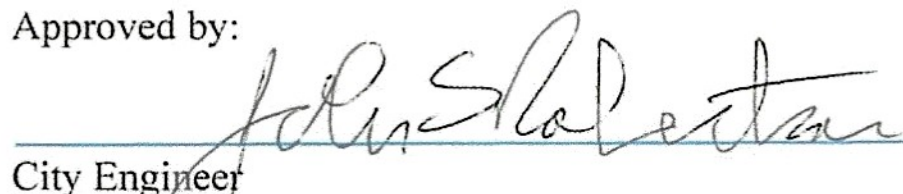
New bid documents include the following changes:

- Updated Supplementary Conditions that included two documents
Civil Rights Requirements for Federal Aid Projects
DBE Goal for the Project
- Updated measurement and Payment
Bid Item #703 – Electric Vehicle Charging Station
Bid Item #704 – Electric Bus Charging Station

Notice to all Contractor submitting bids for this work and to all contract document holders.

You are hereby notified of the following changes to the Contract Documents, more specifically, to the Bid Proposal Package and the construction plans for this project. This addendum shall supersede the original contract documents wherein it contradicts the same and shall take precedence over anything to the contrary therein. All conditions remain the same.

Approved by:

 2/11/2022
City Engineer Date

NOTICE: This addendum shall be acknowledged by the Contractor submitting the bid in the space provided below and this addendum shall be submitted with the Contractor's Bid Proposal as well as submitted for acknowledgment of receipt to Park City Municipal Corporation. Failure to acknowledge may result in the proposal being rejected as not responsive.

Sign and email or turn in this sheet to:
melanie.jackson@parkcity.org

Contractor: 

Updated 2-2022



ADDENDUM

ADDENDUM NO. 2 TO THE PLANS AND SPECIFICATION FOR THE *"Quinn's Junction Park and Ride"*

Bid Date: February 24, 2022

The following additions and/or correction shall become a part of the Contract Document and Construction Plans and Specifications for the subject project.

1. Remove and replace "Quinns Junction Park and Ride Bid Documents 2022-02-09 Addendum 1" with "Quinns Junction Park and Ride Bid Documents 2022-02-16 Addendum 2"

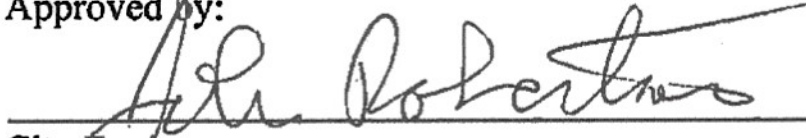
New bid documents include the following changes:

- Updated measurement and Payment
Bid Item #702 – Parking Lot Lighting – attached a Park City Detail with this Addendum

Notice to all Contractor submitting bids for this work and to all contract document holders.

You are hereby notified of the following changes to the Contract Documents, more specifically, to the Bid Proposal Package and the construction plans for this project. This addendum shall supersede the original contract documents wherein it contradicts the same and shall take precedence over anything to the contrary therein. All conditions remain the same.

Approved by:

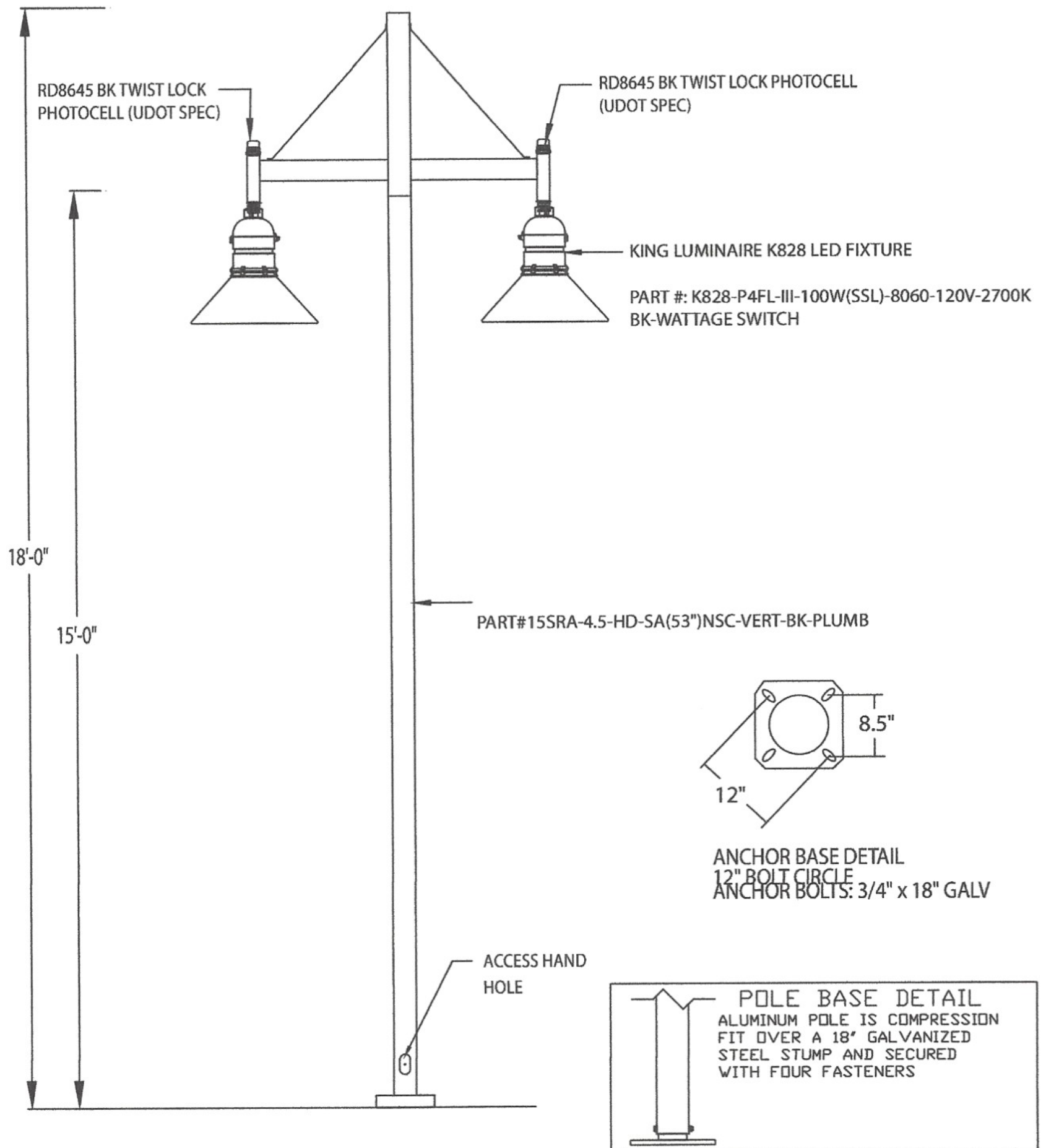
 2/16/22
City Engineer Date

NOTICE: This addendum shall be acknowledged by the Contractor submitting the bid in the space provided below and this addendum shall be submitted with the Contractor's Bid Proposal as well as submitted for acknowledgment of receipt to Park City Municipal Corporation. Failure to acknowledge may result in the proposal being rejected as not responsive.

Sign and email or turn in this sheet to:
melanie.jackson@parkcity.org

Contractor: 

Updated 2-2022



JOB NAME:

Park City, Utah - Parking Lot

SCALE:

NTS

DATE:

11/18/20

DRAWN BY:

XEM

DRAWING NUMBER:

15SRA/K828-DOUBLE

APPROVAL:



ADDENDUM

ADDENDUM NO. 3 TO THE PLANS AND SPECIFICATION FOR THE *"Quinn's Junction Park and Ride"*

Bid Date: February 24, 2022

The following additions and/or correction shall become a part of the Contract Document and Construction Plans and Specifications for the subject project.

1. Remove and replace "Quinns Junction Park and Ride Bid Documents 2022-02-16 Addendum 2" with "Quinns Junction Park and Ride Bid Documents 2022-02-22 Addendum 3"

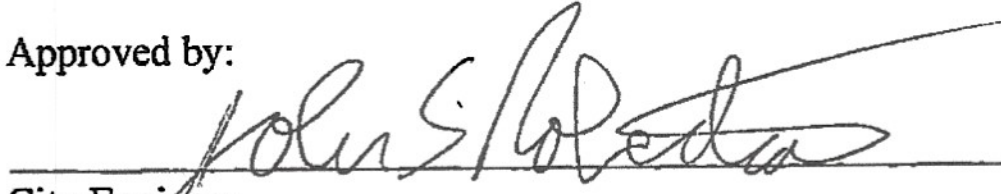
New bid documents include the following changes:

- Updated measurement and Payment
 - Bid Item #218 - Chain Link Gate, h=6ft x w=12ft, added requirement for brown PVC coating
 - Bid Item #219 - Chain Link Fence, h=6ft, added requirement for brown PVC coating
 - Bid Item #309 - Detention Basin, updated measurement and payment to remove sand and permeable soil requirements.
 - Bid Item #221 - Boulder Retaining Wall, adds a requirement for the addition of a geotextile fabric.

Notice to all Contractor submitting bids for this work and to all contract document holders.

You are hereby notified of the following changes to the Contract Documents, more specifically, to the Bid Proposal Package and the construction plans for this project. This addendum shall supersede the original contract documents wherein it contradicts the same and shall take precedence over anything to the contrary therein. All conditions remain the same.

Approved by:


City Engineer

2/22/22
Date

NOTICE: This addendum shall be acknowledged by the Contractor submitting the bid in the space provided below and this addendum shall be submitted with the Contractor's Bid Proposal as well as submitted for acknowledgment of receipt to Park City Municipal Corporation. Failure to acknowledge may result in the proposal being rejected as not responsive.

Sign and email or turn in this sheet(s) to:
melanie.jackson@parkcity.org

Contractor: _____



Updated 2-2022



ADDENDUM

ADDENDUM NO. 4 TO THE PLANS AND SPECIFICATION FOR THE *"Quinn's Junction Park and Ride"*

Bid Date: March 1, 2022

The following additions and/or correction shall become a part of the Contract Document and Construction Plans and Specifications for the subject project.

1. Remove and replace "Quinns Junction Park and Ride Bid Documents 2022-02-22 Addendum 3" with "Quinns Junction Park and Ride Bid Documents 2022-02-23 Addendum 4"

New bid documents include the following changes:

- o Bid submission deadline has been extended to March 1, 2022 at 2 PM
- o The bid opening will be held on Zoom at 2:30 PM on March 1, 2022. The link will be sent via VPO the day of the bid opening.

Notice to all Contractor submitting bids for this work and to all contract document holders.

You are hereby notified of the following changes to the Contract Documents, more specifically, to the Bid Proposal Package and the construction plans for this project. This addendum shall supersede the original contract documents wherein it contradicts the same and shall take precedence over anything to the contrary therein. All conditions remain the same.

Approved by:

John S. Roberts 2/23/22
City Engineer Date

NOTICE: This addendum shall be acknowledged by the Contractor submitting the bid in the space provided below and this addendum shall be submitted with the Contractor's Bid Proposal as well as submitted for acknowledgment of receipt to Park City Municipal Corporation. Failure to acknowledge may result in the proposal being rejected as not responsive.

Sign and email or turn in this sheet(s) to:
melanie.jackson@parkcity.org

Contractor: [Signature]

Updated 2-2022



ADDENDUM

ADDENDUM NO. 5 TO THE PLANS AND SPECIFICATION FOR THE *"Quinn's Junction Park and Ride"*

Bid Date: March 3, 2022

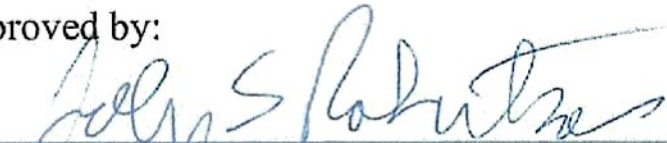
The following additions and/or correction shall become a part of the Contract Document and Construction Plans and Specifications for the subject project.

1. Bid submission deadline has been extended to 2:00 PM, March 3, 2022.

Notice to all Contractor submitting bids for this work and to all contract document holders.

You are hereby notified of the following changes to the Contract Documents, more specifically, to the Bid Proposal Package and the construction plans for this project. This addendum shall supersede the original contract documents wherein it contradicts the same and shall take precedence over anything to the contrary therein. All conditions remain the same.

Approved by:



City Engineer

2/25/22

Date

NOTICE: This addendum shall be acknowledged by the Contractor submitting the bid in the space provided below and this addendum shall be submitted with the Contractor's Bid Proposal as well as submitted for acknowledgment of receipt to Park City Municipal Corporation. Failure to acknowledge may result in the proposal being rejected as not responsive.

Sign and email or turn in this sheet(s) to:
melanie.jackson@parkcity.org

Contractor: _____



Updated 2-2022



ADDENDUM

ADDENDUM NO. 6 TO THE PLANS AND SPECIFICATION FOR THE *"Quinn's Junction Park and Ride"*

Bid Date: March 3, 2022

The following additions and/or correction shall become a part of the Contract Document and Construction Plans and Specifications for the subject project.

1. Remove and replace "Quinns Junction Park and Ride Bid Documents 2022-02-25 Addendum 5" with "Quinns Junction Park and Ride Bid Documents 2022-02-28 Addendum 6"

New bid documents include the following changes:

- Updated measurement and Payment
 - Bid Item #703 – Electric Vehicle Charging Station
 - Bid Item #704 – Electric Bus Charging Station
- Added the following Special Provisions to the Supplemental Specifications (end of the Bid Document).
 - 01 25 50 S – Material Cost Escalation
 - 26 33 44 Electric Vehicle Charging System
 - 32 27 27 Boulder Retaining Wall
 - 33 47 00 Ponds

Notice to all Contractor submitting bids for this work and to all contract document holders.

You are hereby notified of the following changes to the Contract Documents, more specifically, to the Bid Proposal Package and the construction plans for this project. This addendum shall supersede the original contract documents wherein it contradicts the same and shall take precedence over anything to the contrary therein. All conditions remain the same.

Approved by:


City Engineer

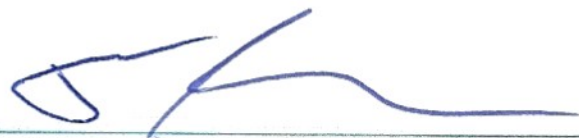
2/28/22
Date

NOTICE: This addendum shall be acknowledged by the Contractor submitting the bid in the space provided below and this addendum shall be submitted with the Contractor's Bid Proposal as well as submitted for

acknowledgment of receipt to Park City Municipal Corporation. Failure to acknowledge may result in the proposal being rejected as not responsive.

Sign and email or turn in this sheet(s) to:
melanie.jackson@parkcity.org

Contractor:

A handwritten signature in blue ink, consisting of a stylized 'M' followed by a horizontal line.

Updated 2-2022

CONSTRUCTION AGREEMENT

THIS AGREEMENT is made and entered into as of this ____ day of _____, 20__, by and between **PARK CITY MUNICIPAL CORPORATION**, a Utah municipal corporation, P.O. Box 1480, Park City, UT 84060, , (hereinafter "City"), and _____, a _____ (Insert state of incorporation) _____ (insert either "corporation" or "limited liability company"), whose post office address is _____, (hereinafter "Contractor").

PURPOSE: For the project known as the (project name) (hereinafter "Project"), which consists of (brief description of work and address).

NOW, THEREFORE, in consideration of the mutual promises contained herein, the parties hereby agree as follows:

SECTION 1. SCOPE OF WORK. Contractor shall furnish all labor, materials and equipment to complete the Project, consisting of the work described in the Information for Bidders as the Basic Bid, and the following additive alternates: _____, as specifically set out in the contract specifications, which is made a part hereof by reference, herein called the "Project."

The Project will be bound by the specifications referenced herein, according to the Advertisement for Bid, the Information for Bidders, the General Project Requirements and Specifications provided by City, the Bid of the Contractor, Bid Bond, Drawings, Notice of Award and Notice to Proceed, (collectively referred to as the "Contract Documents"), all of which are incorporated herein by reference and on file in the _____ Department. To the extent that this Construction Agreement (hereinafter "Contract" or "Agreement") conflicts in any way with a proposed form agreement which may have been submitted as part of the bid specifications, this Agreement shall control.

If any of the work performed by Contractor in any phase of the Project does not meet City standards as outlined in the bid documents and specifications, then Contractor shall immediately repair or correct the work at no additional cost to City.

A. SUBCONTRACTORS. No part of this Contract shall be subcontracted by the Contractor without prior written approval by City through the Project Manager/Engineer. The Contractor shall be fully responsible to the City for the acts and omissions of its subcontractors and of persons either directly or indirectly employed by them as it is for the acts and omissions of persons directly employed by it.

If written approval is granted to subcontract a part of this Contract, the Contractor shall require each subcontractor that physically performs services within Utah to submit an affidavit to the Contractor stating that the subcontractor has used E-Verify, or an equivalent program, to verify the employment status of each new employee.

The Contractor shall, within ten (10) days of submittal of request for final payment, include an affidavit showing satisfactory evidence that all claims of subcontractors, laborers and material men who supplied services or materials to the Project have been fully paid, discharged, or waived. The Contractor shall submit lien waivers for each pay release.

If the City reasonably believes that Contractor has failed to pay Subcontractors, materialmen, or laborers for work on the Project within a reasonable time of when payment is due, then City may, after having notified the Contractor, either pay unpaid bills or withhold from the release of Contractor's payment bond for this Project, a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged and a ten percent (10%) fee for administering such claims.

B. STANDARDS OF WORKMANSHIP. Contractor shall demonstrate workmanship equal to or better than current industry standards for this Project. Where Park City specifications exist, (for example, asphalt, concrete, irrigation, sprinkling system and landscaping), they shall provide the benchmark for determination of acceptability.

C. INSPECTION AND TESTING. All materials and equipment used in the construction shall be subject to inspection by the Project Manager/Engineer. If laws, ordinances, rules or regulations of any public authority having jurisdiction require any work to specifically be inspected, tested, or approved by someone other than Project Manager/Engineer, the Contractor shall give the Project Manager/Engineer timely notice of readiness. Inspections, tests or approvals by the City or appropriate authorities will not relieve the Contractor from obligations to perform the work in accordance with the requirements of the Contract Documents and/or provisions. The Project Manager/Engineer and other designated persons will at all times have access to the work. All work shall ultimately be inspected for final acceptance by the Project Manager/Engineer within a reasonable time upon receipt of notice from the Contractor that work is complete and ready for final inspection.

During construction, the work will be inspected and observed by the Project Manager/Engineer or his designated representative. All work that is deficient or does not meet specifications shall be removed and replaced with proper material at Contractor's expense.

D. WARRANTY. Contractor warrants that all materials and supplies used in the construction of the Project shall be new, except as otherwise agreed to in writing by the City's Representative. All materials, equipment, parts and labor and any necessary corrections to the Project shall be guaranteed for a period of at least one (1) year following the date of substantial completion of the Project under the terms of the performance bond or as provided in the project specifications and construction documents, whichever is longer.

E. ADOPTED CODES. All work shall be completed at a minimum in accordance with all building, electric and energy codes adopted by Park City.

SECTION 2. PERFORMANCE AND PAYMENT BONDS. Contractor shall furnish to the City payment and performance bonds satisfactory to the City guaranteeing Contractor's payment and performance, in the amount, for each separately, of one hundred percent (100%) of the Contract amount.

SECTION 3. INSURANCE. Unless otherwise specified in the bid documents, the Contractor shall procure and maintain for the duration of the Agreement, insurance against claims for injuries to persons or damage to property which may arise from or in connection with the performance of the work hereunder by the Contractor, their agents, representatives, employees, or subcontractors.

The Contractor shall provide Park City Municipal Corporation a Certificate of Insurance evidencing:

A. General Liability insurance written on an occurrence basis with limits no less than Two Million Dollars (\$2,000,000) combined single limit per occurrence and Three Million Dollars (\$3,000,000) aggregate for personal injury, bodily injury and property damage. Coverage shall include but not be limited to: blanket contractual; products/completed operations; explosion, collapse and underground (XCU) if specifically requested; and employer's practices.

The Contractor shall increase the limits of such insurance to at least the amount of the Limitation of Judgments described in Section 63G-7-604 of the Governmental Immunity Act of Utah, as calculated by the state risk manager every two years and stated in Utah Admin. Code R37-4-3.

B. Automobile Liability insurance with a combined single limit of not less than Two Million Dollars (\$2,000,000) each accident for bodily injury, death of any person, and property damage arising out of the ownership, maintenance, and use of owned, hired, and non-owned motor vehicles. This policy must not contain any exclusion or limitation with respect to loading or unloading of a covered vehicle.

- C.** Workers Compensation and Employers Liability coverage with Workers Compensation limits complying with statutory requirements, and Employer's Liability Insurance limits of at least One Million Dollars (\$1,000,000) each accident, One Million Dollars (\$1,000,000) for bodily injury by accident, and One Million Dollars (\$1,000,000) each employee for injury by disease.

The Workers' Compensation policy shall be endorsed with a waiver of subrogation in favor of Park City Municipal Corporation for all work performed by the Contractor, its employees, agents and subcontractors.

- D.** Builder's Risk Insurance (Course of Construction) (at City's discretion)

Before starting the Work, Contractor shall obtain and maintain in force, at its own expense, Builder's Risk (Course of Construction) insurance utilizing an "All Risk" (Special Perils) coverage form, with limits equal to the completed value of the project and no coinsurance penalty provisions. Such coverage shall name Park City Municipal Corporation as an additional insured.

- E.** The general liability and auto liability insurance policies are to contain, or be endorsed to contain, the following provisions:

Park City Municipal Corporation, its officers, officials, employees, and volunteers are to be covered as additional insureds on the commercial general liability policy with respect to liability arising out of work or operations and completed operations performed by or on behalf of the Contractor including materials, parts, or equipment furnished in connection with such work or operations and automobiles owned, leased, hired, or borrowed by or on behalf of the Contractor.

- F.** Should any of the above described policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions. The City reserves the right to request certified copies of any required policies.

- G.** The Contractor's insurance shall contain a clause stating that coverage shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

- H.** For any claims related to this Construction Agreement, the Contractor's insurance coverage shall be primary insurance coverage with respect to Park City Municipal Corporation, its officers, officials, employees, and volunteers. Any insurance or self-insurance maintained by Park City Municipal Corporation, its officers, officials, employees, or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.

SECTION 4. CONTRACT AMOUNT, ACCEPTANCE OF WHOLE, ADDITIONS. City shall pay Contractor a total sum not to exceed (**insert amount, in words**) (**\$ numerically**) ("Contract Amount") for all work and materials expended to complete this Project, which shall include the cost of all bonds, insurance, and all charges, fees, permits (including water and sewer fees, unless waived), expenses or assessments of whatever kind or character that are or may be necessary to complete this Project, including any additive alternates listed within the scope of work described in Section 1.

SECTION 5. PERMITS AND FEES. As set out in Section 4 above, the Contract Amount includes the price of all normally applicable fees and permits. The City may, at its discretion, arrange for the waiver of certain fees, permits and expenses.

SECTION 6. TERMS OF PAYMENT. The City shall pay for services provided hereunder according to and in an aggregate amount not to exceed the Contract Amount or as detailed in an attached payment schedule (if attached, will be **Attachment A**) and only upon Contractor's request on forms approved by and submitted to the Project Manager. The City shall make payment within thirty (30) days thereafter. Requests for a more rapid payment may be considered if a discount is offered for early payment. At no time shall the aggregate amount of money paid to the Contractor in proportion to the Contract Amount be greater than the proportion of the work performed at that point to the total Project work. No payment shall be made for any service rendered by the Contractor except for services set forth and identified in this Agreement. The City reserves the right to withhold payment in whole or part from the Contractor for non-compliance with the provisions of the Contract Documents.

A. RETAINAGE. The City may, in its sole discretion (1) retain five percent (5%) of the value of all work done and materials or equipment supplied as part security for the fulfillment of the Agreement by the Contractor; or (2) retain the final payment of up to five percent (5%) of the total Project amount. As work nears completion and solely at the City's discretion, the City may reduce the retainage to an amount more in line with the work remaining. The City reserves the right to retain all amounts previously withheld or due, including any liquidated damages, until all services specified herein are complete. Any money withheld pursuant to this section shall be placed in an interest bearing account and the interest shall also be payable to the Contractor upon final payment.

Before final payment is made, the Contractor must submit evidence satisfactory to the City that all payrolls, material bills, subcontracts and all outstanding indebtedness in connection with the Project have been paid for.

The City may withhold a reasonable amount of the payment bond sufficient to cover any outstanding indebtedness or monies owed or claimed by any person who

supplied work or materials to the Project plus ten percent (10%) of such indebtedness as the City's cost of administering such claims until Contractor supplies a release satisfactory to the City, signed by all persons who have supplied labor or materials to the Project or, at the City's option if no claim is made, until one hundred five (105) days after the date on which any person performed the last of the labor or supplied the last of the material for the Project and upon written request from the Contractor.

The Contractor shall supply to the Project Manager/Engineer within a reasonable time after his/her request a signed statement verifying all the suppliers, subcontractors, and other persons who have supplied labor or materials to the Project.

B. FINAL PAYMENT. Acceptance by the Contractor of the final payment from the City shall release the City of all claims, demands and liability of the Contractor, its officers, agents, employees and subcontractors, whether communicated or not by the Contractor, except with respect to those matters referred to in writing delivered to the Contractor and approved in a signed writing by the Project Manager.

SECTION 7. COMPLETION TIME. The work on this Project shall commence within ten (10) days of receipt of the Notice to Proceed and shall be completed by <<insert date>>. Work stoppage due to inclement weather conditions and other factors must be approved in writing by the Project Manager. Inclement weather shall not otherwise constitute cause for delay. Unless otherwise agreed by the City by change order, no damages shall become due to Contractor for City caused delay. A change order for delay will generally be accepted for delay so excessive and unreasonable that it is beyond the scope of the Contract or delay attributed to direct, active or willful interference by the City. The change order must be based upon actual damages sustained by the Contractor which are directly attributed to the delay.

In the event that Contractor fails to complete all of the work required herein within the time limit set out above, then for each partial or complete day during which the work remains uncompleted thereafter, the Contractor agrees to pay the City **One Hundred Dollars (\$100.00), _____ (Contractor Initials)** which the parties believe, due to the difficulty of actually assessing the damages the City will suffer in the event of such a delay, is a fair estimate of the loss the City will suffer. The parties agree that the daily liquidated damages provided for herein is reasonable and fair, and is not a penalty. **TIME IS OF THE ESSENCE IN THIS AGREEMENT.**

SECTION 8. ADDITIONAL WORK/CHANGE ORDERS. The City may enlarge or reduce the work to be performed by Contractor hereunder by written notification to Contractor, including changes to the plans and specifications. The City shall pay Contractor for any additional work so requested, and shall reduce the payment to the Contractor for any

reduction in labor, materials, overhead and profit margin resulting from the reduction in the work. Except as the City shall so notify the Contractor in writing, it is understood and agreed by the parties hereto that no money will be paid to the Contractor for any new or additional labor or materials furnished unless a written modification is agreed to in a document signed by both parties.

The value of any work covered by a change order or of any claim for increase or decrease in the Contract price shall be determined by one (1) or more of the following methods in order of precedence listed below:

- A. An agreed lump sum; or in the event the parties cannot agree; then
- B. The unit rate for the work bid by the Contractor, if applicable, or in the event there was no such rate bid; then
- C. The actual cost for: (1) labor; (2) materials; (3) supplies; (4) equipment; (5) direct overhead (not to exceed 5% of the sum total of items 1-4, unless approved by the City); and (6) other services necessary and approved by the City to complete the work. In the event of a net increase in the Contract Amount for a change order as a whole, the City shall allow a payment to the Contractor of an additional ten percent (10%) of the actual cost of the work, not including direct overhead or bond costs, to cover the cost of general overhead and profit. The Contractor may also charge the City for actual cost of the net increase in bond costs as a result of the overall change to the Contract Amount. The City specifically reserves the right to request documentation, including, but not limited to, payroll stubs, bond bills, and invoices, to validate the Contractor's calculations.

SECTION 9. DISPUTES. Except as otherwise provided in this Agreement, any disputes concerning a question of fact arising under this Agreement which are not disposed of by agreement shall be decided by the City. The decision of the City shall be final and conclusive unless, within thirty (30) days from the date of receipt of such decision, the Contractor shall mail or otherwise furnish the City a written signed appeal addressed to the Project Manager/Engineer. In connection with any appeal proceeding under this clause, the Contractor will be afforded an opportunity to be heard and to offer evidence in support of its appeal. Pending final decision of a dispute hereunder, the Contractor will proceed diligently with the performance of the Contract and in accordance with the City's decision. The decision of the City shall be final and conclusive, but shall not be arbitrary or unreasonable. Although this Contract has been drafted by the City, the Contractor expressly agrees that any ambiguity herein shall be resolved in favor of the City.

SECTION 10. DEFAULT, REMEDY AND TERMINATION. The City may terminate this Agreement upon the occurrence of one or more of the following events:

- A.** If Contractor or any subcontractor should substantially violate any of the provisions of this Agreement;
- B.** If Contractor substantially fails to perform any part of this Agreement;
- C.** If Contractor repeatedly fails or becomes unable to perform the services under this Agreement as required herein, or substantially fails to provide services under this Agreement for a period of seventy two (72) hours;
- D.** If Contractor (1) shall become insolvent in a bankruptcy case; (2) shall be generally not paying its debts as they become due, or within a reasonable time thereafter; (3) shall suffer, voluntarily or involuntarily, the entry of an order by any court or governmental authority authorizing the appointment of or appointing of a custodian (as that term is defined in 11 U.S.C. §101(11)), receiver, trustee, or other officer with similar powers with respect to it or any portion of its property which remains undismissed for a period of ninety (90) days; (4) shall suffer, voluntarily or involuntarily, with or without judicial or governmental authorization, any such custodian, receiver, trustee, or other officer with similar powers to take possession of any part of its property which third party remains in possession for an excess of ninety (90) days; (5) shall suffer, voluntarily or involuntarily, the filing of a petition respecting an assignment for the benefit of creditors which is not dismissed for a period of ninety (90) days; (6) shall be dissolved; (7) shall become the subject of any proceeding, suit, or action at law or in equity under or relating to any bankruptcy, reorganization or arrangement of debt, insolvency, readjustment of debt, receivership, liquidation, or dissolution law or statute or amendments thereto to be commenced by or against it or against any of its property which remains undismissed for a period of ninety (90) days; (8) shall voluntarily suspend substantially all of its business operations; (9) shall be merged with, acquired by, or otherwise absorbed by any individual, corporation, or other business entity or organization of any kind except for any individual corporation or other business entity or organization which is controlled by, controlling, or under common control with the Contractor; or (10) shall take action for the purpose of any of the foregoing.

After serving ten (10) days written notice on the Contractor and its surety of its intention to terminate the services of Contractor, and if within ten (10) days after serving such notice, the violation is not corrected to City's reasonable satisfaction, the City then may take over the work and prosecute it to completion by contract or by any other method it may deem advisable at the expense of the Contractor. The Contractor and the bonding company shall be liable to the City for any reasonable cost occasioned by the City in excess of the amount agreed to for the service herein.

The Contractor shall be entitled to a hearing before a City hearing officer upon the issue of termination if it submits a written request therefore within seven (7) days of the service of

the notice of the City's intent to terminate. The Contractor shall be entitled to be heard at such hearing on the issue of termination. The Contractor shall not bring an action against the City, its officers, agents or employees arising out of or relating to the termination of this Agreement before the decision is issued by the City's hearing officer(s).

Waiver of any default shall not be deemed to be a waiver of any subsequent default. Waiver of any provision of this Agreement shall not be construed to be modification of the terms of this Agreement, unless stated to be such in writing, signed by the City's authorized representative.

The Contractor shall continue the performance of this Agreement to the extent not terminated under the provisions of this section.

The rights and remedies of the City provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this Agreement.

SECTION 11. HOLD HARMLESS INDEMNIFICATION. The Contractor clearly and unequivocally agrees to indemnify and to hold the City and its agents, employees, and officers, harmless from and shall process and defend at its own expense any and all claims, demands, suits, at law or equity, actions, penalties, losses, damages, or costs, of whatsoever kind or nature, brought against the City arising out of, in connection with, or incident to the execution of this Agreement and/or the Contractor's performance or failure to perform any aspect of this Agreement; provided, however, that if such claims are caused by or result from the concurrent negligence of the City, its agents, employees, and officers, this indemnity provision shall be valid and enforceable only to the extent of the negligence of the Contractor or others; and provided further, that nothing herein shall require the Contractor to hold harmless or defend the City, its agents, employees and/or officers from any claims arising from the sole negligence of the City, its agents, employees, and/or officers. The Contractor expressly agrees that the indemnification provided herein constitutes the contractor's waiver of immunity under Utah Code Section 34A-2-105 for the purposes of this Agreement. This waiver has been mutually negotiated by the parties. The provisions of this section shall survive the expiration or termination of this Agreement. No liability shall attach to the City by reason of entering into this Agreement except as expressly provided herein.

SECTION 12. CONTROLLING LAW AND ATTORNEY FEES AND COSTS. These general conditions shall be construed in accordance with and enforced under the laws of the State of Utah. Any action of law, suit in equity, or judicial proceeding for the enforcement of the Agreement, or any provisions thereof, shall be instituted and maintained only in any of the courts of competent jurisdiction in Summit County, Utah. If any legal proceeding is brought for the enforcement of this Agreement, or because of a dispute, breach, default, or misrepresentation in connection with any of the provisions of this Agreement, the prevailing party shall be entitled to recover from the other party, in addition

to any other relief to which such party may be entitled, reasonable attorney's fees and other costs incurred in connection with that action or proceeding.

SECTION 13. ASSIGNMENT. The Contractor shall not assign nor transfer any interest in this Agreement without the prior written consent of the City, provided however, that claims for compensation due or to become due the Contractor from the City under this Agreement may be assigned to a bank, trust company, or other financial institution without such approval. Written notice of any such assignment shall be promptly furnished to City.

SECTION 14. SAFETY AND TRAFFIC CONTROL. Contractor shall take all reasonable precautions to protect the safety of pedestrians, school children, motorists, and others who may use or come near to the Project site, including, but not limited to, compliance with the Manual of Uniform Traffic Control Devices.

SECTION 15. SAFETY AND PROTECTION OF THE WORK. Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Project work. Contractor shall provide reasonable protection to prevent damage, injury or loss to employees on the Project work and all other persons who may be affected thereby, materials and equipment, whether on or off the site, and other property at the work site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction. In addition, the Contractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the safety of persons or property or their protection from damage, injury or loss.

The Contractor shall erect and maintain, as required by the existing conditions and progress of the work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, setting safety regulations, and notifying owners and user of adjacent utilities.

The Contractor shall promptly remedy all damage or loss to any property referred to in this section caused in whole or in part by the Contractor, any subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable and for which the Contractor is responsible, except for acts or omissions by the City or anyone directly or indirectly employed by it, or by anyone for whose acts it may be liable, and not attributable to the fault or negligence of the Contractor. Contractor shall remove from the site all cuttings, debris, equipment and unused material.

SECTION 16. UNENFORCEABLE CONTRACT, WAIVERS. In the event that any provision of this Agreement shall be ruled invalid and unenforceable, the remaining provisions shall be valid and binding upon the parties. One or more waivers by either party

of any provision, term, or covenant shall not be construed by the other party as a waiver of a subsequent breach of the same provision by the other party.

SECTION 17. ENTIRE AGREEMENT. This Agreement represents the entire integrated agreement between City and Contractor and supersedes all prior negotiations, representations or agreements, either written or oral. This Agreement may be amended only by written modification signed by both parties.

SECTION 18. COMMENCEMENT OF WORK. Contractor will commence work as required by the specifications within ten (10) calendar days after receiving the Notice To Proceed.

SECTION 19. UTILITIES. The right is reserved to the owners of public utilities and franchises to enter upon the street or work site for the purpose of making repairs or changes of their property that may become necessary by the work. The City shall also have the privilege of entering upon the street or work site for the purpose of repairing culverts, storm drains, water system repairs or adjustments, and any and all other necessary City work.

The Contractor takes the whole risk, responsibility and expense with respect to the location of utilities, and in working with utility owners about locating, moving, repairing, and modifying utilities. All utility locations shown on the plans and specifications are approximate and are marked on the plans, if at all, only for convenience. The City makes no representation about the location of any such utilities, and Contractor is encouraged to contact utility companies and owners about the location of all utilities that may be impacted by or impact the Project work.

SECTION 20. HOURS AND DAYS OF WORK. All work performed by the Contractor, its subcontractors, materialmen, agents and employees shall be performed during work hours of 7:00 a.m. to 9:00 p.m. Monday through Saturday unless otherwise specified in a Conditional Use Permit or Construction Mitigation Plan. In individual Construction Mitigation Plans, the Building Official may further reduce the hours or days of work for special events or as other circumstances may reasonably warrant. When work is prohibited, no exterior construction, excavation or delivery of supplies and concrete are allowed. Interior work, however, may be allowed Monday through Sunday, with no limitation on hours for the following types of construction:

- A.** Interior work on individual single-family home construction or addition projects not involving materials or supply deliveries.
- B.** Construction of decks, patios, landscape walls less than four feet (4') in height, and fences on individual single-family lots.

- C. Non-mechanized exterior painting on individual single-family residences.
- D. Non-mechanized landscaping on individual single-family residences.
- E. Survey work not involving grading or use of power equipment to cut vegetation.

Extended Hours Special Permit. The Building Official may authorize extended hours for construction operations or procedures which, by their nature, require continuous operation, or modify or waive the hours of work on projects in generally isolated areas where the extended hours do not impact upon adjoining property occupants. In such cases, the Building Official shall issue a special permit identifying the extended hours. Contractor shall display the special permit on site.

Special Event Regulations. The Building Official and/or Police Chief may, at their discretion, restrict construction activity, including governmental or special improvement agencies, in order to assure the public safety during special events within the City. Special events shall include, but not be limited to, the Art Festival, Film Festival, ski events, and holiday events.

SECTION 21. CONSTRUCTION PLANS. Contractor shall submit a Construction Mitigation Plan to be approved by the City Engineer or his/her designee, for all building permits. The Community Development Department may waive this requirement for minor remodels, additions and interior construction where the impact on adjacent property is minimal. This plan shall be written and shall address, to the satisfaction of the City Engineer or his/her designee:

A. Hours and Days of Operation. The Construction Mitigation Plan shall specify the daily construction start and finish times. Construction activity occurring outside of the times specified in Section 11-14-6 of the Park City Municipal Code may only be allowed by special permit issued by the Building Official or the City Engineer.

B. Parking. The Construction Mitigation Plan shall include a parking plan. Construction vehicle parking may be restricted at construction sites so as to not block reasonable public and safety vehicle access along streets and sidewalks. Construction parking in paid or permit only parking areas require the Public Works Department to review and approve a parking plan. The plan shall also include anticipated temporary parking, e.g., delivery vehicles, and large equipment parking.

C. Deliveries. The Construction Mitigation Plan shall identify proposed delivery locations and routes. Deliveries of construction materials and supplies including concrete may be regulated as to time and routing if such deliveries will cause

unreasonable noise, parking, or access issues. In order to reduce the number of delivery trips to construction sites, the stockpiling of materials on or near the site may be required. In the case of multiple construction sites in close proximity, a common materials storage and staging site may be required.

D. Construction Phasing. Due to the narrow streets, small lot configuration, topography, traffic circulation, weather, construction parking and material staging problems, projects in the Historic District and other areas of the City may be required to be phased if more than one project is under construction in close enough proximity to create public safety or nuisance problems. In cases where phasing is deemed necessary by the City Engineer or his/her designee, the first project to receive a building permit shall have priority, however, the Building Official shall have the authority to phase projects as necessary to assure efficient, timely and safe construction.

E. Trash Management and Recycling. Construction sites shall provide adequate storage and a program for trash removal.

F. Control of Dust and Mud on Streets. A program for the control of dust or other airborne debris shall be required. Provision must be made to eliminate the tracking of mud on streets and a program shall be required to remove any such mud daily.

G. Noise. Construction activity shall not exceed the noise standards as specified in Section 6-3-9 of the Park City Municipal Code.

H. Grading and Excavation. Because of the truck hauling involved in grading and excavation, restrictions on trucking routes as well as the hours of operation may be necessary to mitigate the adverse impacts from such operations. Destination and total cubic yards of excavated material shall be noted.

I. Construction Sign Requirements. A sign indicating the name of the party responsible for the Project shall be posted in a location where such sign is readable from the street or driveway to the construction site. The sign shall not exceed twelve (12) square feet in size, six (6') feet in height and shall not exceed a letter type of four inches (4"). Information on the sign shall include, at a minimum:

1. Name, address and phone number of Contractor;
2. Name, address, and phone number of person responsible for the project; and
3. Phone number of party to call in case of emergency.

No additional fee is required for this sign.

SECTION 22. TOILET FACILITIES AND CONTAINERIZED TRASH SERVICE REQUIRED.

A. The Contractor shall obtain and maintain on the site a container of suitable size and design to hold and confine trash, scraps, and other construction related refuse created or accumulated on the site. All such construction refuse shall be maintained in a closed container at all times, until transferred to the landfill. Containers may be placed in setback areas, provided that the placement of the container does not obstruct the view of motorists on adjoining streets and thereby create traffic hazards. Contractor shall not permit accumulated debris, litter, or trash on the construction site to blow or scatter onto adjoining properties, including the public street, or to accumulate on the site outside of the container, or in transit to the landfill or dump. The owner or Contractor shall service the container as frequently as needed to prevent trash from over-flowing.

B. The Project site shall have permanent toilets, or an approved temporary toilet facility positioned in a location approved by the Building Department, at the rate of one toilet per fifteen on-site employees (1-15 employees = one toilet, 16-30 employees= two toilets and so on).

SECTION 23. OBEY LAWS.

- A.** The Contractor shall obey all laws, ordinances and regulations of the United States, the State of Utah, and Park City in performing this Agreement.
- B.** The Contractor shall register and participate in E-Verify, or an equivalent program. The Contractor agrees to verify employment eligibility through E-Verify, or an equivalent program, for each new employee that is employed within Utah, unless exempted by Utah Code § 63G-12-302.

SECTION 24. NONDISCRIMINATION.

Any Contractor that enters into an agreement for goods or services with Park City Municipal Corporation or any of its boards, agencies, or departments shall:

- A.** Implement an employment nondiscrimination policy prohibiting discrimination in hiring, discharging, promoting or demoting, matters of compensation, or any other employment- related decision or benefit against a person otherwise qualified, because of actual or perceived race; color; sex;

pregnancy, childbirth, or pregnancy-related conditions; age, if the individual is 40 years of age or older; religion; national origin; disability; sexual orientation; gender identity; genetic information; or military status.

- B. In the performance of this Agreement, Contractor shall not discriminate on account of actual or perceived race; color; sex; pregnancy, childbirth, or pregnancy-related conditions; age, if the individual is 40 years of age or older; religion; national origin; disability; sexual orientation; gender identity; genetic information; or military status.
- C. Incorporate the foregoing provisions in all subcontracts or assignments hereunder and take such actions as may be required to ensure full compliance with the provisions of this policy.

SECTION 25. THIRD PARTY RIGHTS. Nothing herein is intended to confer rights of any kind in any third party. No member, officer, or employee of the City shall have any interest, direct or indirect, in this Agreement or the proceeds thereof.

SECTION 26. PROJECT MANAGER/ENGINEER. The Project Manager/Engineer for this Project is [REDACTED], or such other person designated by the City Engineer or Public Works Director to the Contractor orally or in writing.

SECTION 27. PARTIES' REPRESENTATIVES. For purposes of notice required or desired by the parties or communication involving the services under this Agreement, such notice or communication shall be deemed to have been given when personally delivered or mailed certified mail, postage pre-paid, or sent by facsimile transmission, to the parties at the following addresses:

Contractor: [REDACTED], or such other person designated in writing by the Contractor's chief administrative officer, at the Contractor's address set out first above.

Park City: Project Manager/Engineer, at the address set out first above for the City, or when given to such other person as either of the above representatives shall designate in writing. The designation of any address may be changed by notice given in the same manner as provided in this section.

SECTION 28. SEVERABILITY. Should any part of this Agreement for any reason be declared invalid, such decision shall not affect the validity of any remaining provisions, which remaining provisions shall remain in force and effect as if this Agreement had been executed with the invalid portion thereof eliminated, and it is hereby declared the intention

of the parties that they would have executed the remaining portion of this Agreement without including any such part, parts, or portions which may, for any reason, be hereafter declared invalid. If any provision of this Agreement is held invalid or unenforceable with respect to particular circumstances, such provision shall nevertheless remain in full force and effect in all other circumstances.

SECTION 29. COUNTERPARTS. This Agreement may be executed in counterparts, each of which will be deemed an original and all of which together will constitute one and the same instrument.

SECTION 30. ELECTRONIC SIGNATURES. Each party agrees that the signatures of the parties included in this Agreement, whether affixed on an original document manually and later electronically transmitted or whether affixed by an electronic signature through an electronic signature system such as DocuSign, are intended to authenticate this writing and to create a legal and enforceable agreement between the parties hereto.

IN WITNESS WHEREOF, the parties have entered into this Agreement on the day and year set out at the top of this Agreement.

PARK CITY MUNICIPAL CORPORATION, a Utah
municipal corporation

Matt Dias, City Manager

ATTEST:

City Recorder's Office

APPROVED AS TO FORM:

City Attorney's Office

INSERT CONTRACTOR NAME

Address:

Address:

City, State, Zip:

Utah Contractor License No.

Tax ID#:

Signature

Printed name

Title

THE CITY REQUIRES THE CONTRACTOR TO COMPLETE EITHER THE NOTARY
BLOCK OR THE UNSWORN DECLARATION, WHICH ARE BELOW.

STATE OF UTAH)
) ss.
COUNTY OF SUMMIT)

On this ____ day of _____, 20__, personally appeared before me _____, whose identity is personally known to me/or proved to me on the basis of satisfactory evidence and who by me duly sworn/affirmed, did say that he/she is the _____ (*title or office*) of _____, a _____ corporation (or limited liability company), by authority of its Bylaws/Resolution of the Board of Directors (if as to a corporation) or Operating Agreement/Member Resolution (if as to a limited liability company), and acknowledged that he/she signed it voluntarily for its stated purpose as _____ (title) for _____, a _____ corporation (or limited liability company).

Notary Public

I declare under criminal penalty under the law of Utah that the foregoing is true and correct. Signed on the ____ day of _____, 20____, at _____ (insert State and County here).

Printed name _____

Signature: _____

MEMO

To: Matt Dias, Park City Manager
From: Jerry Benson, Transit Consultant
Subject: Quinn's Junction Park and Ride Lot Review
Date: March 27, 2020

Summary

Per your request for an assessment of the proposed park and ride (P & R) lot at Quinn's Junction, I have reviewed the history, funding and planning of this project. I have also reviewed industry guidelines and best practices for P & R lots. This memo summarizes my findings and recommendations. In short, I recommend that the city proceed to build a P & R lot at the frontage road location as recommended by staff. Before that occurs, I also recommend that the city and county, through JTAB, develop a comprehensive vision and high level plan for infrastructure, transit service and supportive parking and land policies for the two entry corridors, SR224 and SR248.

History and Funding

A P & R lot and increased bus service in the area of Quinn's Junction has been anticipated in regional plans for several years. The 2016 Short Range Transit Plan identified enhanced access and signal improvements to the Richardson Flat P & R lot, along with all day bus service. The 2016 Interlocal Agreement on Additional Mass Transit Tax (2nd quarter) between Summit County and Park City identified express bus service on SR248 as a priority project to be funded with the new tax. Planning and design of a P & R lot at Quinn's Junction was funded in 2018 by the County Transportation Sales Tax (3rd quarter) at \$405,000. In 2017, Park City applied for and was awarded Federal 5311 funding (in FY 2018) for construction of the P & R lot in the Quinn's area. There is currently \$1 million in federal funding available for a first phase lot. Future federal funding can potentially be made available by reprogramming funds from other projects that are not moving forward at this time. There is some urgency to decide on the final site and provide documentation to UDOT to secure the \$1 million. Funds were allocated for federal FY 2018 and if final site selection and environmental clearance is not transmitted to UDOT in the next few months, then these funds would likely need to be reallocated to other projects that are ready to advance.

Bus service to the area has been limited. Until the Winter 2019-2020 service, the area was only served by the Dial-a-Ride and Kamas Commuter routes. This winter, the Red 1 Route was extended to provide all-day fixed route service to the hospital area. The Richardson Flat P & R is only used for special event service.

Planning and Evaluation

A professional evaluation of three sites was conducted by AECOM in 2019. In comparison to another UDOT-owned parcel and the existing Richardson Flat P & R, the frontage road site is superior. It has better proximity to the SR248/US40 interchange. It can accommodate about 500 stalls and has no insurmountable engineering or

environmental challenges. It would require improvements to the interchange; such as, lane reconfiguration and striping. The city has not yet addressed the related transportation and land use issues that will determine whether this lot will make a positive impact on auto travel into the city. Without those elements, it's not possible to determine the extent to which this lot will be utilized and whether it will impact auto travel into the city.

Park and Ride Lot Sizing and Effectiveness

I reviewed the Transit Cooperative Research Program Report 192 "Guidebook on Planning and Managing Park-and-Ride." I also spoke with Hal Johnson at UTA, who was one of the members of the oversight panel for the report. While most P & R lots serve rail transit, there are several points from this industry guidance worth noting:

1. P & R lots are used creatively by patrons for car pooling, park and walk, park and bike, drop off and ride, and transfers from one route to another. For example, this lot could become a car pooling location for people driving into Salt Lake or Utah Counties.
2. Use of a P & R lot is dependent on accessibility and size, but, more importantly, on the amount and quality of transit compared to drive-only options.
3. Drive-only options are influenced by auto restrictions, driving travel time, cost, parking availability and accessibility to final destination.
4. Bus P & R lots are most successful if they are served by multiple bus routes, enabling travel to and from several locations.
5. Transit agencies usually deploy multiple P & R lots to serve different markets and to keep sizes manageable.
6. P & R lots can be incorporated into transit oriented land uses to enhance transit ridership and to use parking resources efficiently. Lots can be shared between daytime transit users and overnight hotel users, or be shared between transit and businesses.
7. P & R lots should be evaluated with consideration of their entire lifecycle. Often, lots start out small, but need to be enlarged as transit service is improved or land is developed and transit ridership grows. Conversely, some P & R lots begin large and are then reduced as transit service is extended or as parking is converted to transit-oriented developments (UTA's Sandy TRAX lot is a good example, beginning at over 1000 stalls and now having fewer than 300).

P & R lots are typically sized to accommodate the number of projected transit boardings at a station by people who drive from surrounding areas. There are about 20,000 auto trips daily along SR248 with hourly peaks Westbound of 290 cars per hour between 7:30 and 9:00 and Eastbound of 340 cars per hour between 4:45 and 5:15. A P & R lot of 450 stalls served by a bus route operating on 15 minute frequency could potentially reduce the peak traffic significantly. If the buses each carried 20 passengers, 80 riders per hour could be delivered into the city or about 20 percent of the peak hour auto trips (290 cars per hour between 7:30 and 9:00 equals 435 cars with 1.2 passengers each equals 522; 20 riders per bus times 4 buses per hour times 1.5 hours equals 120; 120/522 equals 23%). This level of bus ridership would consume about 100 stalls during the peak hours.

Quinn's P & R as Part of a Transportation System

This P & R facility should be considered as part of a system of transportation infrastructure, services and policies that support the city's goals. The location and size of the preferred lot make it worth the investment, as long as it's supported with good bus service to major destinations in the city, supported with aggressive city parking controls, supported with transit oriented development of adjacent land, and supported with good regional connections from Eastern Summit County and Wasatch County. The Quinn's P & R lot cannot be evaluated separate from transit service on SR248. Consider the following possible transportation scenario:

- Quinn's P & R lot served by express bus service every 15 minutes, traveling on bus only shoulder running into the Park City bus hub.
- Quinn's P & R lot served by commuter buses from Kamas, Heber and Salt Lake.
- Destinations in the area of the Park City Hospital, NAC and sports complex continue to provide ample, free parking, and have an all-day bus connection into Park City.
- Park City expands parking controls to include city-wide residential permit parking and paid parking at resort areas.
- Express bus service is provided from Richardson Flat P & R lot to ski resorts and Old Town throughout the winter and on event days in the summer. Resorts supplement service with employee shuttles, and extra buses for events, weekends and snow days.
- Resort base areas and Old Town are served by frequent, dedicated transit ways (bus or aerial) from bus hub.
- The area adjacent to the Quinn's P & R is redeveloped into transit oriented mixed use commercial and residential (currently low density industrial: cement plant, waste removal services, auto parts and services). Shared parking is expanded as part of the transit oriented development.

Assuming that this scenario were to be achieved, this P & R lot and the bus routes serving it would be highly utilized. Together with the Richardson Flat P & R, a significant transit mode share, especially during high volume periods, could occur.

Regional Partnerships

Success of a regional transportation system depends on effective partnerships with other cities, counties, UDOT and FTA. The partnerships with Summit County and with UDOT are strained at this point. While both JTAB and the County Council were briefed on the Quinn's P & R location evaluation, they did not meaningfully contribute to the project. Neither the city nor the county has had the opportunity to discuss how this lot would function together with bus service and other projects, such as the SR224 BRT. The fact that the city and county publically opposed the UDOT SR248 widening project is an indication of poor communication at the staff level between the city and UDOT earlier in the project planning.

I have talked with Caroline Rodriguez at Summit County and we both recommend that the JTAB engage in a thorough review and discussion about the high level vision, constraints, and funding assumptions for transportation along the two entry corridors. As you know, the BRT terminal at the Arts and Culture District is a point of concern. If the JTAB can keep the discussion at a high level, I believe we will find that both the city and county desire to create a transportation system that really works. The parties should acknowledge that current plans and designs are inadequate to demonstrate how a system will actually function.

Conclusion

The Quinn's P & R lot at the frontage road location is a worthwhile investment for the city. It will enable Park City Transit to implement express bus service along with shoulder running to a dedicated bus end-of-line with parking for customers. It is convenient to drivers from US40 and SR248 and is adjacent to a development node identified by the county (although the current and near future uses are not transit-supportive). It is not the sole solution to congestion on SR248 nor to excessive auto travel in Park City, but it can be an important contributor if paired with appropriate transit service levels and city parking strategies.

The most powerful tool the city has to limit auto travel into the city is parking policy. However, unless there are attractive transit alternatives to auto travel, potential visitors to the area will go elsewhere. The University of Utah achieved a non-auto mode share of over 50 percent by limiting parking (both supply and expense) and by investing in transit infrastructure, service and fare subsidies. Vail Ski Resort has charged for base area parking for years and has effectively restricted auto trips into the core resort area. The challenge for the city is to preserve quality of life for residents while also enabling economic success for the resorts and businesses. Restricting auto travel and parking in the core and providing abundant, high quality transit may be the only way to meet that challenge.

Council Agenda Item Report

Meeting Date: May 5, 2022

Submitted by: Michelle Kellogg

Submitting Department: Engineering

Item Type: Staff Report

Agenda Section: OLD BUSINESS

Subject:

Consideration to Authorize the City Manager to Execute Two Professional Services Agreements, in Forms Approved by the City Attorney, with Wall Consultant Group. Inc. in an amount Not to Exceed \$175,771.19 for Quinn's Junction Park & Ride Site Improvements and \$100,720.63 for the Park Avenue Bus Stop Site Improvements

(A) Public Input (B) Action

Suggested Action:

Attachments:

[Quinn's Park & Ride and Park Avenue Bus Shelter Contracts Staff Report](#)

[Exhibit A: Project Location Map - Quinn's Park and Ride](#)

[Exhibit B: Project Location Map - Park Avenue Bus Stop](#)

[Exhibit C: WCG Proposal](#)

[Exhibit D: DRAFT Design Professional Service Agreement](#)

City Council Staff Report



Subject: Professional Services Agreement for Construction
Management at Quinns Park & Ride and Park Avenue Bus Stop
Site Improvements
Author: Gabriel Shields, PE, Transportation Engineer
Department: Engineering
Date: May 5, 2022
Type of Item: Administrative

Recommendation

Authorize the City Manager to execute two Professional Services Agreements (PSA), in forms approved by the City Attorney, with Wall Consultant Group, Inc. (Consultant) for an amount not to exceed \$175,771.19 for Quinn's Junction Park & Ride and \$100,720.63 for the Park Avenue Bus Stop Site Improvements.

Executive Summary

The Engineering Department advertised two capital projects aimed at increasing transit ridership and reducing single occupancy vehicle trips in Park City. The first project is the Quinn's Junction Park & Ride located at old US-40 and SR-248. The second project is bus shelter and site improvements in the vicinity of A-Fresh Market on Park Avenue, two of our systems most utilized locations. The procurement contract for construction of the bus shelters was previously approved by Council at a regularly held meeting on [January 13 2022](#).

Construction will begin summer 2022 and requires construction management services to ensure the work is constructed in accordance with the engineering plans and specification as well as all procedural requirements associated with Federal Transit Authority (FTA) funding. The Engineering Department solicited three firms from a previously approved pool of design professionals to provide construction management services. WCG was selected, and the two different construction projects are expected to occur simultaneously and lend to a single consultant to realize efficiencies.

Background

Quinns Junction Park & Ride: Park and ride facilities are part of an overarching transportation demand management system for Park City that seeks to reduce vehicle miles travelled and related traffic impacts during peak days and peak hours. The purpose is to provide regional park and ride bus services, carpooling, and support peak periods, special events, and general visitation mitigation. The park and ride will operate every day, but will see peak use during ski season, Sundance, and other high profile special events. Once operational, buses will transport people to Park City via SR-248

express lane, and feature 465 parking stalls, charging for electric buses and vehicles, bicycle share facilities, and trailhead amenities to serve the Rail Trail.

Park Avenue Bus Shelter Site Improvements: Park City is utilizing a phased approach to coordinate and centralize bus stop and bus shelter improvements throughout Park City. The phased approach focuses first on shelters located on gateway corridors, with high boarding numbers. The goal is to provide new shelters and amenities that emulate the historic character and small mountain town nature of the area while reducing Single Occupancy Vehicle (SOV) trips. Improving shelters and adding amenities can help garner additional ridership and continue to cultivate the positive experiences that Park City Transit riders have.

The Park Avenue Bus Shelter Site Improvements project includes improving both shelters on Park Avenue at approximately 1755 Park Avenue, and 1760 Park Avenue (Park Ave Condos, and A Fresh Market, respectively). Currently, existing shelters are outdated, prefabricated, and do not provide adequate shelter, amenities, or ADA access. This location sits at the gateway to Old Town Park City and has the highest boarding numbers in the whole system. They desperately need additional pedestrian space, adequate sidewalks, and amenities like lighting, seating, bike racks, updated “Next Bus” information, and heat.

Design was completed, and they have been advertised for construction. Construction is anticipated to begin summer 2022 and completed fall 2022. The Engineering Department will enter into two separate PSA with WCG to perform construction management of the two separate projects.

The scope of the consultant services includes the following:

- Preconstruction Activities
 - Review of plans and specifications
 - Conduct preconstruction meeting and prepare minutes
 - Project setup
- Construction Management
 - Weekly project meetings
 - Responses to Request for Information
 - Review of Submittals
 - Administration of Change Orders
 - Project walk-through and closeout
- Project Administration
 - Project documentation and compliance management
 - Development and implementation of Quality Management Plan
 - Verification of project quantities submitted for invoicing
 - Payment request review
 - Workday and schedule tracking
- Field Inspection
 - Daily inspection of work, full time personnel on site
 - Daily inspection diary

- Inspection of traffic control
- Soil sampling and density testing in situ
- Safety inspections
- Materials Testing
 - Soil and aggregate testing in lab environment
 - Concrete strength testing
 - Lab Documentation

The Engineering Department prepared a solicitation in the form of a Request for Proposal from pre-qualified consulting firms in the transportation services pool.

Analysis

Considering qualifications, project familiarity, staff availability, and cost of services, the Engineering Department selected the Consultant as the preferred consultant to provide Construction Management professional services for the two projects.

Department Review

This staff report has been reviewed by the City Manager, Community Development, Budget and the City Attorney's Office.

Funding Source

The cost is programmed under two separate Capital Project numbers. The majority of funding comes through a grant received from the Federal Transit Authority. Any required local matching funds will come from various local transportation funds. The total of the two contracts is \$276,491.82 and split as follows:

- Quinns Junction Park & Ride: CP0411 will provide funding for construction management services equal to \$175,771.19; and
- Park Avenue Bus Shelters: CP0420 will provide funding for construction management services equal to \$100,720.63.

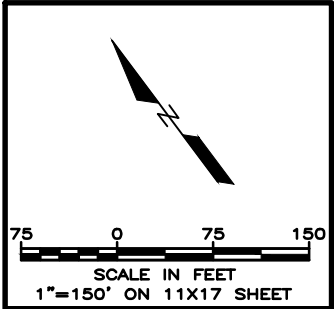
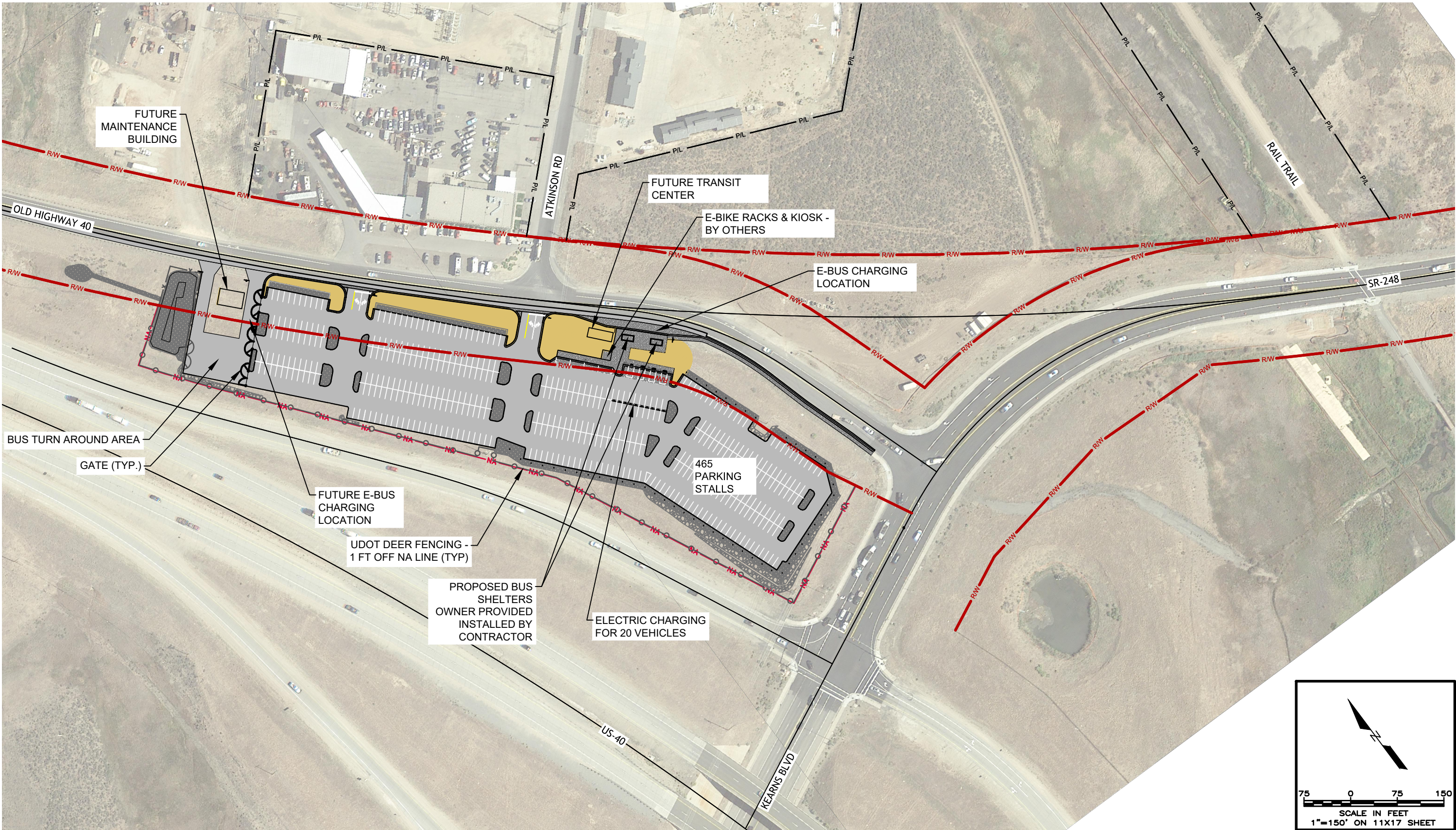
Exhibits

Exhibit A: Project Location Map of Quinns Park & Ride

Exhibit B: Project Location Map of Park Ave Bus Stop Site Improvements

Exhibit C: Wall Consultant Group Proposal

Exhibit D: Draft Professional Services Agreement



DWG File: C:\pwworking\aecon\ ds21 na 2020\dms68851\C-100-103 SITE PLAN.dwg

REV	DATE	DESCRIPTION
C	04-13-2020	90% PACKAGE
B	08-14-2020	60% PACKAGE
A	01-24-2020	30% PACKAGE

Submittal:

EXHIBIT

Seal:

**PRELIMINARY
NOT FOR
CONSTRUCTION**

Consultant:

AECOM

756 East Winchester Street
Suite 400
Salt Lake City, UT 84107
Phone: (801) 904-4000
Fax: (801) 904-4100

Submitted By: _____

Client:

PARK CITY
1884

Approved By: _____

Designed By:
J. UPRIGHT

Drawn By:
J. UPRIGHT/
S. CARROLL

Checked By:
G. STONE

Approved By:
J. UPRIGHT

QUINN'S JUNCTION PARK AND RIDE

**OVERALL SITE
C-100**

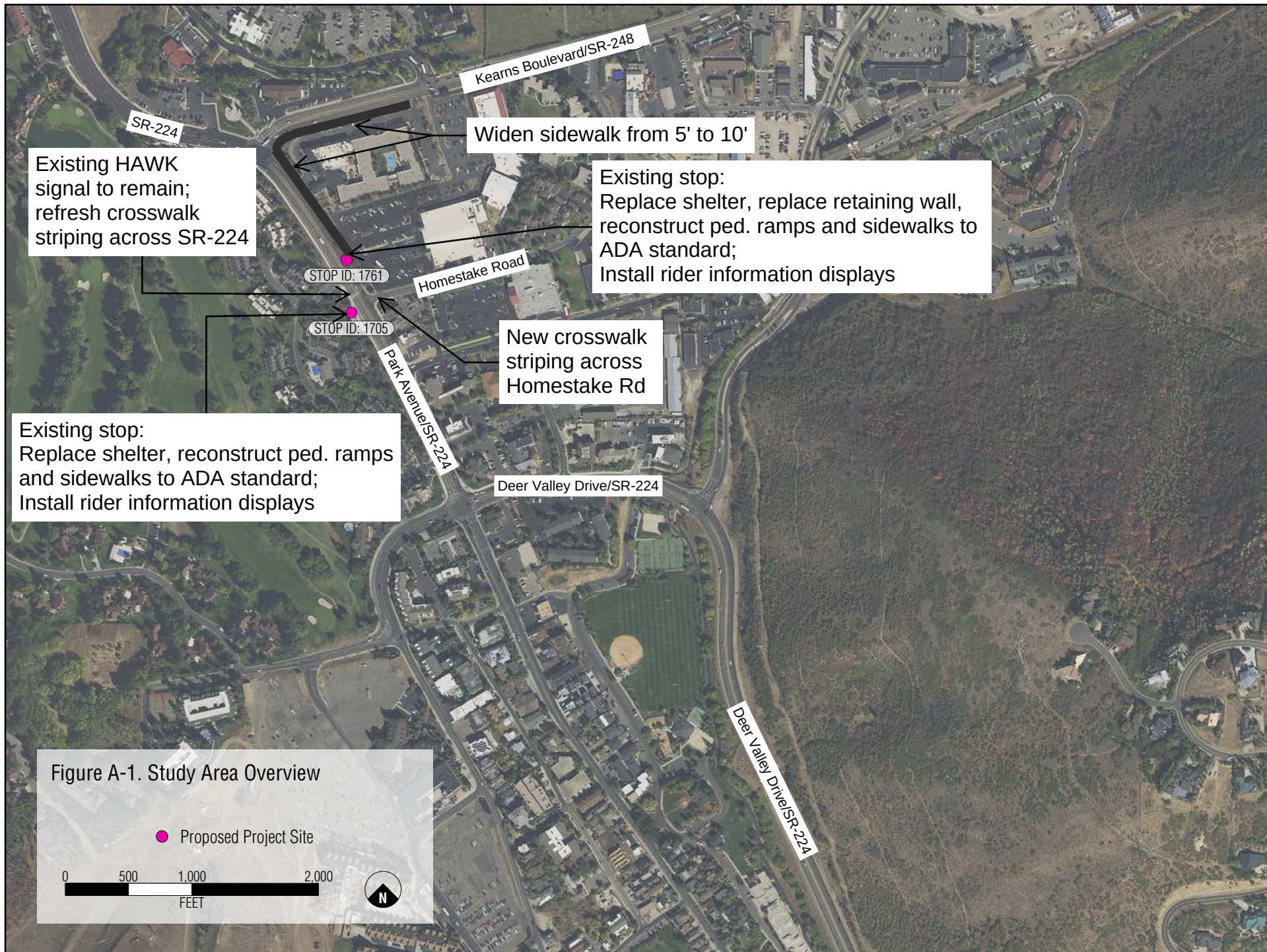
1" = 150' @ 11X17

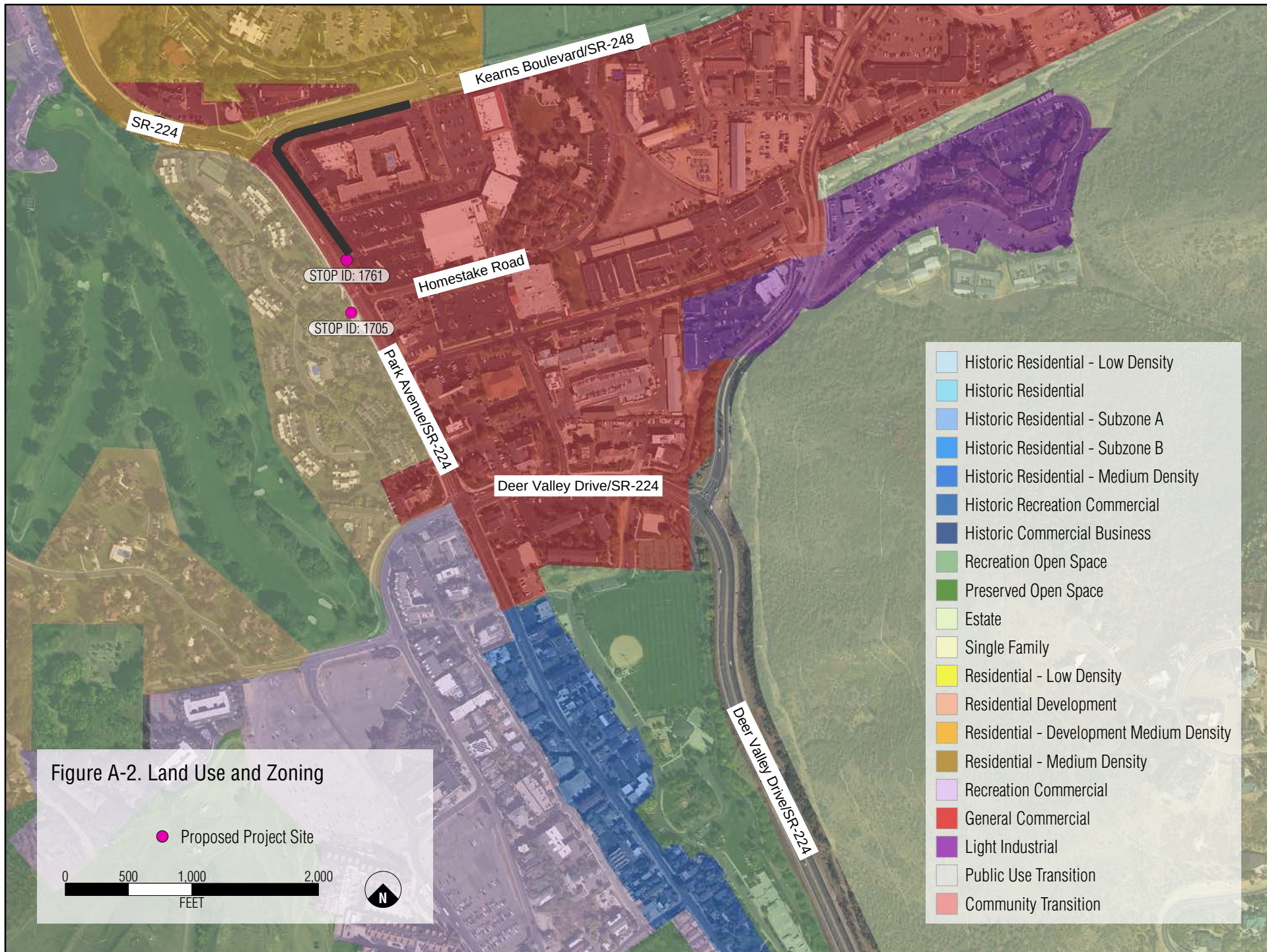
CADD Filename:
C-100-103 SITE PLAN.dwg

Submittal Date:
10/06/2021

Contract No.:
60600697

Alignment: _____ Sheet No.: **8**
42







To: Park City
Date: January 19, 2022
RE: WCG Scope, Schedule & Budget for Construction Eng. Management
Project: Park City Park Avenue Bus Stops

Dear John Robertson:

Please see below our scope, budget, and schedule for Construction Engineering Management (CEM) services of the subject project. We have a materials lab to provide quality assurance for the materials testing on the project which includes proctors and nuclear gage field density verification. We appreciate the opportunity to work with Park City on this important project.

Respectfully,

A handwritten signature in black ink, appearing to read 'Gary Horton', is written over a horizontal line.

Gary Horton, PE
Project Manager / Principal

Executive Summary

Brief Description:

WCG will provide CEM services for the aforementioned project. This will include construction inspection and materials testing. It is anticipated that the Resident Engineer (RE) responsibilities will be performed by Park City (Dave Gustafson). The tasks include construction inspection, documentation, and project closeout activities as described below:

Prime and Subs:

WCG will perform all work for this contract, including inspection and materials testing.

Assumptions:

- Construction Time Frame: 17-weeks
- It is anticipated that there will be 17 weekly meetings
- Inspection:
 - Four hours per day assumed (Hours include drive time).
- Materials Testing is based off UDOT MS&TR. We used the engineers estimate along with assumptions of contractor productivity to generate the amount of tests we anticipate for the following materials:
 - Concrete
 - Density
 - HMA
 - Aggregate

- Inspector will attend contractor safety meetings that are anticipated to be held in conjunction with the weekly update meetings.
- Pre-paving or other project specific task meetings will be held in conjunction with the weekly update meeting.
- It is anticipated that there will be three RFI's
- WCG anticipates one change order on this project where we can provide assistance to the RE.
- It is assumed the same inspector will be working on this and the Quinn's Junction Park and Ride project which will provide economy of scale to both projects.

Phasing:

It is anticipated this project will be completed in one phase.

Fee Type:

Lump Sum per the defined scope.

Work Plan

Preconstruction

- WCG will review the plans and specifications to become familiar with the work when a contract NTP is given.
- WCG will attend the preconstruction meeting with the RE, Park City, and the Contractor prior to construction. WCG will prepare the agenda along with conducting and recording the meeting minutes. We will distribute minutes to the project team.
- Initial project setup
- Assist Park City with questions that come during the advertisement (two anticipated).
- The WCG team will visit the project site to review existing conditions and take pictures to understand the project and its limits once contract NTP is given.

Construction Management

- Weekly project meetings: WCG will prepare agendas, schedule, and conduct meetings, take meeting minutes, and distribute. WCG will have an RE and Inspector, in attendance at all meetings.
- Process Reviews: WCG will perform internal process reviews as a part of our QC plan including, but not limited to documentation, quantities, subcontracts, material testing requirements, diaries, and material certifications.
- Requests for Information (RFI's): WCG will review and respond to RFI's submitted on the project. (Three anticipated)
- Review of Submittals: In coordination with the RE who will review and accept all submittals on the project, WCG will track submittals on the project including, materials certification, TC, MOT, and detour plans, Critical Path Method (CPM) schedules, mix design and material testing source suitability and targets.
- Change Orders (CO): WCG will coordinate with the RE who will review all requests for CO's and determine if a change order is necessary. It is anticipated that the RE will also prepare a CO justification and cost estimate, review schedule impacts for any contract time adjustments, and prepare the CO to submit for signatures and processing.

- Post-construction conference and final walkthrough: The RE will schedule and conduct a final inspection and walkthrough. We will develop a punch list of work items required to be completed to achieve physical completion.

Project Administration

- WCG will set up and maintain project documentation and project files. We will review and accept project documentation such as material certifications, prompt payment, subcontracts, pay item documentation, etc. Also includes project billing.
- WCG will develop a Quality Management Plan (QMP) to track all material documentation that is submitted. This will reference the pay items and submittal requirements along with the MS&TR and special provisions as the standard for reference.
- As a part of our QMP, WCG will review and check all quantities measured for payment on the project weekly.
- It is anticipated that the RE will review and process monthly partial payment requests. Our inspector will work with the contractor and agree on quantities for each monthly payment request.
- Under the direction of the RE, WCG will track contractor workdays and schedule.

Field Inspection

- Daily inspection of the work: WCG will have a full-time inspector on site each day while the contractor is working to inspect and document the contractor's work.
- Daily diary entries: The WCG inspector will enter daily diary entries for each pay item to properly document the contractors work and progress. The inspector will also document in the diary any activities or conversations that do not pertain to a pay item.
- TC and MOT inspection: WCG will perform daily inspections to ensure the TC and MOT are in accordance with the approved TC and MOT plans.
- Sampling of soils: WCG will sample all soils per UDOT MS&TR and submit them to our lab in Salt Lake City for testing.
- Concrete Testing in the field: WCG will test all concrete placed on the project as per UDOT MS&TR. This could be daily based on the phasing of work. Tickets: WCG will gather all material tickets and total them for quantity and payment.
- WCG will complete forms for aggregate physical properties and density as required by UDOT MOI.
- Density testing in the field: WCG inspectors will perform density testing on granular materials incorporated into the project using a Nuclear Density Gauge per UDOT MS&TR.
- Safety inspections: Safety of workers and the traveling public is critical to the project's success. WCG will continually observe contractor work for safety and attend and participate in weekly safety meetings which will be a part of the weekly update meeting.

Materials Testing

- Soils/Agg Testing: WCG will use our lab to perform materials testing on Untreated Base Course (UTBC), concrete sand and aggregates. All material testing will be completed and shared with the city and contractor.
- Concrete Strength: WCG will test all concrete cylinders for strength acceptance testing. All material testing will be completed and shared with the city and contractor.



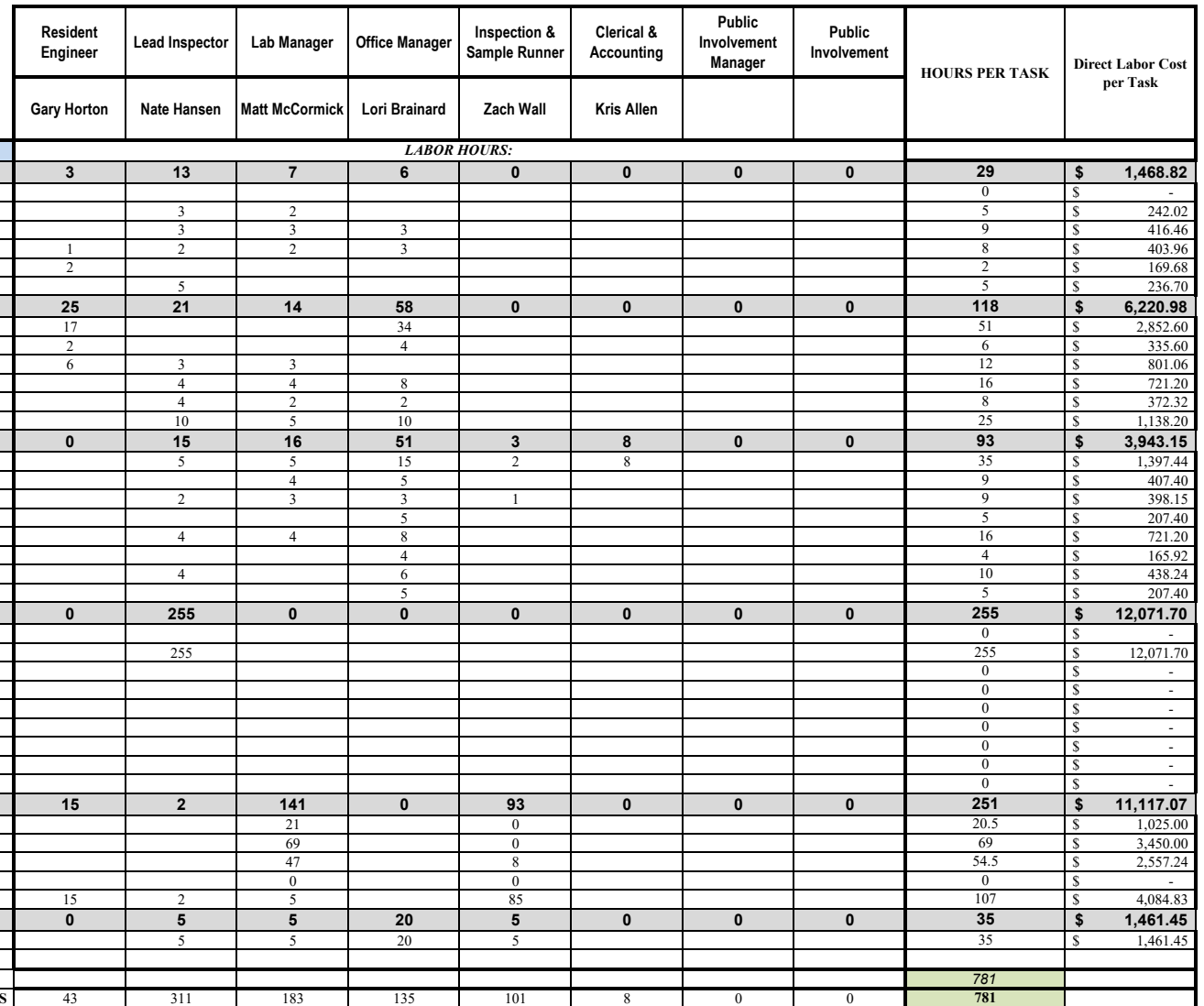
- Lab Documentation and Test Results: WCG will record and distribute all test results and documentation.

Public Involvement

- It is anticipated that the city will perform PI duties.

Construction Closeout

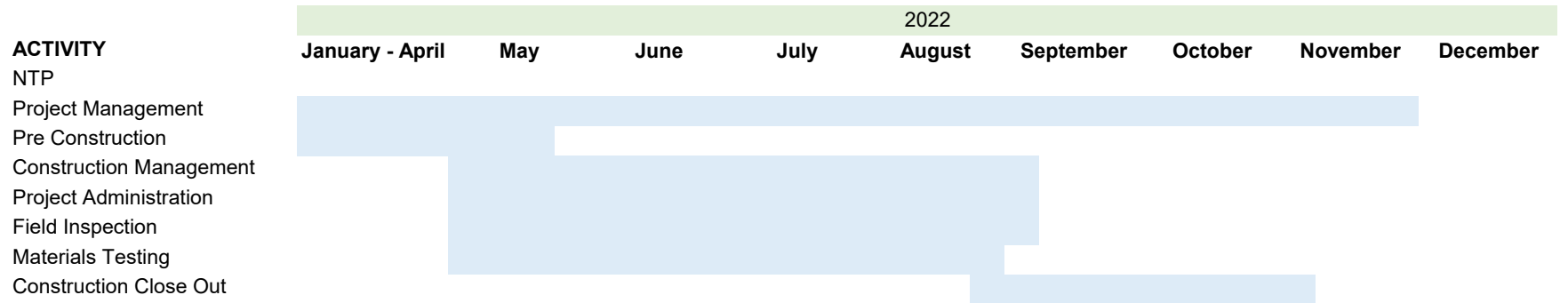
- Final forms and documentation: Prepare final close out documentation and forms.

519



Park City (Park Avenue Bus Stops)
Construction Schedule
1/11/2022

DRAFT SCHEDULE





To: Park City
Date: January 19, 2022
RE: WCG Scope, Schedule & Budget for Construction Eng. Management
Project: Park City Quinn's Junction Park and Ride Lot

Dear John Robertson:

Please see below our scope, budget, and schedule for Construction Engineering Management (CEM) services of the subject project. We have a materials lab to provide quality assurance for the materials testing on the project which includes proctors and nuclear gage field density verification. We appreciate the opportunity to work with Park City on this important project.

Respectfully,

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Gary Horton, PE
Project Manager / Principal

Executive Summary

Brief Description:

WCG will provide CEM services for the aforementioned project. This will include construction inspection and materials testing. It is anticipated that the Resident Engineer (RE) responsibilities will be performed by Park City (Dave Gustafson). The tasks include construction inspection, documentation, and project closeout activities as described below:

Prime and Subs:

WCG will perform all work for this contract, including inspection and materials testing.

Assumptions:

- Construction Time Frame: 17-weeks
- It is anticipated that there will be 17 weekly meetings
- Inspection:
 - Five hours per day assumed (Hours include drive time).
- Materials Testing is based off UDOT Minimum Sampling & Testing Requirements (MS&TR). We used the engineers estimate along with assumptions of contractor productivity to generate the number of tests we anticipate for the following materials:
 - Concrete
 - Density
 - HMA
 - Aggregate
- Inspector will attend contractor safety meetings that are anticipated to be held in conjunction with the weekly update meetings.

- Pre-paving or other project specific task meetings will be held in conjunction with the weekly update meeting.
- It is anticipated that there will be three RFI's
- WCG anticipates one change order on this project where we can provide assistance to the RE.
- It is assumed the same inspector will be working on this and the Park Avenue bus stops which will provide economy of scale to both projects.

Phasing:

It is anticipated this project will be completed in one phase.

Fee Type:

Lump Sum per the defined scope.

Work Plan

Preconstruction

- WCG will review the plans and specifications to become familiar with the work when a contract NTP is given.
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- As a part of our QMP, WCG will review and check all quantities measured for payment on the project weekly.
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- Density testing in the field: WCG inspectors will perform density testing on granular materials incorporated into the project using a Nuclear Density Gauge per UDOT MS&TR.
- Safety inspections: Safety of workers and the traveling public is critical to the project's success. WCG will continually observe contractor work for safety and attend and participate in weekly safety meetings which will be a part of the weekly update meeting.

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- Lab Documentation and Test Results: WCG will record and distribute all test results and documentation.

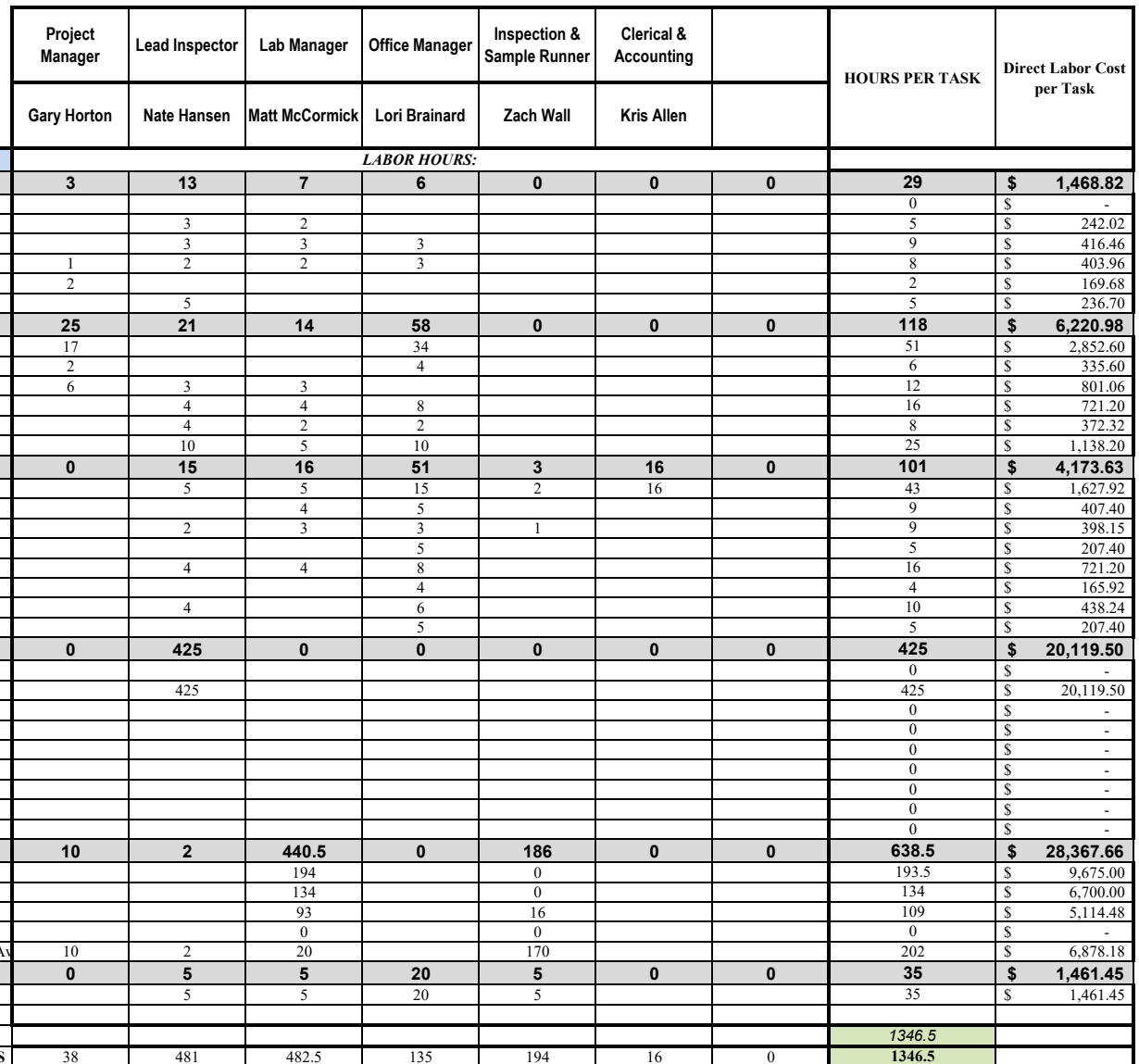


Public Involvement

- It is anticipated that the city will perform PI duties.

Construction Closeout

- Final forms and documentation: Prepare final close out documentation and forms.

525



Park City Quinn's Parking
Construction Schedule
1/11/2022

DRAFT SCHEDULE



PLEASE REMOVE THIS CLAUSE, ALL COMMENTS IN THE MARGINS, AND ALL YELLOW HIGHLIGHTING THROUGHOUT DOCUMENT!!!!

Template Updated 08-21

PARK CITY MUNICIPAL CORPORATION DESIGN PROFESSIONAL SERVICES AGREEMENT

This Design Professional Services Agreement (the "Agreement") is made and entered into as of this 31 day of March, 2022, by and between **PARK CITY MUNICIPAL CORPORATION**, a Utah municipal corporation, ("City"), and Wall Consultant Group, a (Insert state of incorporation) (insert either "corporation" or "limited liability company"), ("Design Professional"), collectively, the City and the Design Professional are referred to as (the "Parties)."

WITNESSETH:

WHEREAS, the City desires to have certain services and tasks performed as set forth below requiring specialized skills and other supportive capabilities;

WHEREAS, sufficient City resources are not available to provide such services; and

WHEREAS, the Design Professional represents that the Design Professional is qualified and possesses sufficient skills and the necessary capabilities, including technical and professional expertise, where required, to perform the services and/or tasks set forth in this Agreement.

NOW, THEREFORE, in consideration of the terms, conditions, covenants, and performance contained herein, the Parties hereto agree as follows:

1. SCOPE OF SERVICES.

The Design Professional shall perform such services and accomplish such tasks, including the furnishing of all materials and equipment necessary for full performance thereof, as are identified and designated as Design Professional responsibilities throughout this Agreement and as set forth in the "Scope of Services" attached hereto as "**Exhibit A**" and incorporated herein (the "Project"). The total fee for the Project shall not exceed one hundred seventy-five thousand seven hundred seventy-one and nineteen cents (\$175,771.19).

The City has designated _____, or his/her designee as City's Representative, who shall have authority to act on the City's behalf with respect to this Agreement consistent with the budget contract policy.

2. TERM.

No work shall occur prior to the issuance of a Notice to Proceed which cannot occur until execution of this Agreement, which execution date shall be commencement of the term and the term shall terminate on _____ or earlier, unless extended by mutual written agreement of the Parties.

3. COMPENSATION AND METHOD OF PAYMENT.

- A. Payments for services provided hereunder shall be made monthly following the performance of such services.
- B. No payment shall be made for any service rendered by the Design Professional except for services identified and set forth in this Agreement.
- C. For all "extra" work the City requires, the City shall pay the Design Professional for work performed under this Agreement according to the schedule attached hereto as "Exhibit B," or if none is attached, as subsequently agreed to by both Parties in writing.
- D. The Design Professional shall submit to the City Manager or her designee on forms approved by the City Manager, an invoice for services rendered during the pay period. The City shall make payment to the Design Professional within thirty (30) days thereafter. Requests for more rapid payment will be considered if a discount is offered for early payment. Interest shall accrue at a rate of six percent (6%) per annum for services remaining unpaid for sixty (60) days or more.
- E. The Design Professional reserves the right to suspend or terminate work and this Agreement if any unpaid account exceeds sixty (60) days.
- F. Design Professional acknowledges that the continuation of this Agreement after the end of the City's fiscal year is specifically subject to the City Council's approval of the annual budget.

4. RECORDS AND INSPECTIONS.

- A. The Design Professional shall maintain books, records, documents, statements, reports, data, information, and other material with respect to matters covered, directly or indirectly, by this Agreement, including (but not limited to) that which is necessary to sufficiently and properly reflect all direct and indirect costs related to the performance of this Agreement, and

PARK CITY MUNICIPAL CORPORATION DESIGN PROFESSIONAL SERVICES AGREEMENT

shall maintain such accounting procedures and practices as may be necessary to assure proper accounting of all funds paid pursuant to this Agreement.

- B. The Design Professional shall retain all such books, records, documents, statements, reports, data, information, and other material with respect to matters covered, directly or indirectly, by this Agreement for six (6) years after expiration of the Agreement.
- C. The Design Professional shall, at such times and in such form as the City may require, make available for examination by the City, its authorized representatives, the State Auditor, or other governmental officials authorized by law to monitor this Agreement all such books, records, documents, statements, reports, data, information, and other material with respect to matters covered, directly or indirectly, by this Agreement. The Design Professional shall permit the City or its designated authorized representative to audit and inspect other data relating to all matters covered by this Agreement. The City may, at its discretion, conduct an audit at its expense, using its own or outside auditors, of the Design Professional's activities, which relate directly or indirectly to this Agreement.
- D. The City is subject to the requirements of the Government Records Access and Management Act, Chapter 2, Title 63G, Utah Code 1953, as amended and Park City Municipal Code Title 5 ("GRAMA"). All materials submitted by Design Professional pursuant to this Agreement are subject to disclosure unless such materials are exempt from disclosure pursuant to GRAMA. The burden of claiming an exemption from disclosure rests solely with Design Professional. Any materials for which Design Professional claims a privilege from disclosure based on business confidentiality shall be submitted marked as "confidential - business confidentiality" and accompanied by a concise statement from Design Professional of reasons supporting its claim of business confidentiality. Generally, GRAMA only protects against the disclosure of trade secrets or commercial information that could reasonably be expected to result in unfair competitive injury. The City will make reasonable efforts to notify Design Professional of any requests made for disclosure of documents submitted under a claim of confidentiality. Design Professional specifically waives any claims against the City related to any disclosure of materials pursuant to GRAMA.

5. INDEPENDENT CONTRACTOR RELATIONSHIP.

- A. The Parties intend that an independent Design Professional/City relationship will be created by this Agreement. No agent, employee, or representative of the Design Professional shall be deemed to be an employee, agent, or representative of the City for any purpose, and the

PARK CITY MUNICIPAL CORPORATION

DESIGN PROFESSIONAL SERVICES AGREEMENT

employees of the Design Professional are not entitled to any of the benefits the City provides for its employees. The Design Professional will be solely and entirely responsible for its acts and for the acts of its agents, employees, subcontractors or representatives during the performance of this Agreement.

- B. In the performance of the services herein contemplated the Design Professional is an independent contractor with the authority to control and direct the performance of the details of the work, however, the results of the work contemplated herein must meet the approval of the City and shall be subject to the City's general rights of inspection and review to secure the satisfactory completion thereof.

6. DESIGN PROFESSIONAL EMPLOYEE/AGENTS.

The City may at its sole discretion require the Design Professional to remove an employee(s), agent(s), or representative(s) from employment on this Project. The Design Professional may, however, employ that (those) individuals(s) on other non-City related projects.

7. HOLD HARMLESS INDEMNIFICATION AND ATTORNEY FEES.

- A. The Design Professional shall indemnify and hold the City and its agents, employees, and officers, harmless from any and all liability for damages, including claims, demands, suits, at law or equity, actions, penalties, losses, damages, or costs, of whatsoever kind or nature, brought against the City arising out of, in connection with, or incident to (1) the Design Professional's breach of contract, negligence, recklessness, or intentional misconduct; or (2) the Design Professional's subconsultant's or subcontractor's negligence.
- B. The Design Professional shall also reimburse the City, including its agents, employees, and officers, and any other person for attorney fees or other costs incurred by the person in defending against a claim alleging liability for damages to the extent the attorney fees or costs were incurred due to (1) the Design Professional's breach of contract, negligence, recklessness, or intentional misconduct; or (2) the Design Professional's subconsultant's or subcontractor's negligence.
- C. If such claims are caused by or result from the concurrent negligence of the City, its agents, employees, and officers, this indemnity provision shall be valid and enforceable to the extent of the Design Professional's breach of contract, negligence, recklessness, or intentional misconduct; or the Design Professional's subconsultant's or subcontractor's negligence.

PARK CITY MUNICIPAL CORPORATION DESIGN PROFESSIONAL SERVICES AGREEMENT

- D. The Design Professional expressly agrees that the indemnification provided herein constitutes the Design Professional's limited waiver of immunity as an employer under Utah Code Section 34A-2-105; provided, however, this waiver shall apply only to the extent an employee of Design Professional claims or recovers compensation from the City for a loss or injury that Design Professional would be obligated to indemnify the City for under this Agreement. This limited waiver has been mutually negotiated by the Parties, and is expressly made effective only for the purposes of this Agreement.
- E. Further, nothing herein shall require the Design Professional to hold harmless, defend, or reimburse the City, its agents, employees and/or officers from any claims arising from the sole negligence of the City, its agents, employees, and/or officers.
- F. The Design Professional is required to maintain and to provide a standard of care consistent with other design professionals with the same or similar professional license, who normally provide projects, work, and/or services as is established in this Agreement in Park City, Utah. Accordingly, if the nature of the project, work, and/or services established in this Agreement requires specialized design expertise, the Design Professional is required to provide services consistent with the specialized design expertise established in this Agreement.
- G. No liability shall attach to the City by reason of entering into this Agreement except as expressly provided herein.
- H. The provisions of this section shall survive the expiration or termination of this Agreement.

8. INSURANCE.

The Design Professional shall procure and maintain for the duration of the Agreement, insurance against claims for injuries to persons or damage to property which may arise from or in connection with the performance of the work hereunder by the Design Professional, their agents, representatives, employees, or subcontractors. The Design Professional shall provide a Certificate of Insurance evidencing:

- A. General Liability insurance written on an occurrence basis with limits no less than One Million Dollars (\$1,000,000) per occurrence and Three Million Dollars (\$3,000,000) aggregate for personal injury, bodily injury and property damage.

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The Design Professional shall increase the limits of such insurance to at least the amount of the Limitation of Judgments described in Section 63G-7-604 of the Governmental Immunity Act of Utah, as calculated by the state risk manager every two years and stated in Utah Admin. Code R37-4-3.

- B. Automobile Liability insurance with a combined single limit of not less than Two Million Dollars (\$2,000,000) each accident for bodily injury, death of any person, and property damage arising out of the ownership, maintenance, and use of owned, hired, and non-owned motor vehicles. This policy must not contain any exclusion or limitation with respect to loading or unloading of a covered vehicle.
- C. Professional Liability (Errors and Omissions) insurance (if applicable) with annual limits no less than One Million Dollars (\$1,000,000) per occurrence. Design Professional agrees to continue to procure and maintain professional liability insurance coverage meeting these requirements for the applicable period of statutory limitation of claims (or statute of repose, if applicable) after the project completion or termination of this Agreement.

If written on a claims-made basis, the Design Professional warrants that the retroactive date applicable to coverage precedes the effective date of this agreement; and that continuous coverage will be maintained for an extended reporting period endorsement (tail coverage) will be purchased for a period of at least three (3) years beginning from the time that work under this agreement is complete.

- D. Workers Compensation insurance and Employers Liability coverage with Workers Compensation limits complying with statutory requirements, and Employer's Liability Insurance limits of at least One Million Dollars (\$1,000,000) each accident, One Million Dollars (\$1,000,000) for bodily injury by accident, and One Million Dollars (\$1,000,000) each employee for injury by disease.

The Workers' Compensation policy shall be endorsed with a waiver of subrogation in favor of Park City Municipal Corporation for all work performed by the Design Professional, its employees, agents and subcontractors.

- E. Park City Municipal Corporation, its officers, officials, employees, and volunteers are to be covered as additional insureds on general liability and auto liability insurance policies, with respect to work performed by or on behalf of the Design Professional including materials, parts, or equipment

PARK CITY MUNICIPAL CORPORATION DESIGN PROFESSIONAL SERVICES AGREEMENT

furnished in connection with such work or operations and automobiles owned, leased, hired, or borrowed by or on behalf of the Design Professional and a copy of the endorsement naming the City as an additional insured shall be attached to the Certificate of Insurance. Should any of the above described policies be cancelled before the expiration date thereof, Design Professional shall deliver notice to the City within thirty (30) days of cancellation. The City reserves the right to request certified copies of any required policies.

- F. The Design Professional's insurance shall contain a clause stating that coverage shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.
- G. For any claims related to this Design Professional Services Agreement, the Design Professional's insurance coverage shall be primary insurance coverage with respect to Park City Municipal Corporation, its officers, officials, employees, and volunteers. Any insurance or self-insurance maintained by Park City Municipal Corporation, its officers, officials, employees, or volunteers shall be excess of the Design Professional's insurance and shall not contribute with it.

9. TREATMENT OF ASSETS.

Title to all property furnished by the City shall remain in the name of the City and the City shall become the owner of the work product and other documents, if any, prepared by the Design Professional pursuant to this Agreement (contingent on City's performance hereunder).

10. COMPLIANCE WITH LAWS AND WARRANTIES.

- A. The Design Professional, in the performance of this Agreement, shall comply with all applicable federal, state, and local laws and ordinances, including regulations for licensing, certification and operation of facilities, programs and accreditation, and licensing of individuals, and any other standards or criteria as described in this Agreement to assure quality of services.
- B. Unless otherwise exempt, the Design Professional is required to have a valid Park City business license.
- C. The Design Professional specifically agrees to pay any applicable fees or charges which may be due on account of this Agreement.

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- D. If this Agreement is entered into for the physical performance of services within Utah the Design Professional shall register and participate in E-Verify, or an equivalent program. The Design Professional agrees to verify employment eligibility through E-Verify, or an equivalent program, for each new employee that is employed within Utah, unless exempted by Utah Code Ann. § 63G-12-302.
- E. Design Professional shall be solely responsible to the City for the quality of all services performed by its employees or sub-contractors under this Agreement. Design Professional hereby warrants that the services performed by its employees or sub-contractors will be performed substantially in conformance with the standard of care observed by similarly situated companies providing services under similar conditions.

11. NONDISCRIMINATION.

Any Design Professional that enters into an agreement for goods or services with Park City Municipal Corporation or any of its boards, agencies, or departments shall:

- A. Implement an employment nondiscrimination policy prohibiting discrimination in hiring, discharging, promoting or demoting, matters of compensation, or any other employment-related decision or benefit against a person otherwise qualified, because of actual or perceived race; color; sex; pregnancy, childbirth, or pregnancy-related conditions; age, if the individual is 40 years of age or older; religion; national origin; disability; sexual orientation; gender identity; genetic information; or military status.
- B. In the performance of this Agreement, Design Professional shall not discriminate on account of actual or perceived race; color; sex; pregnancy, childbirth, or pregnancy-related conditions; age, if the individual is 40 years of age or older; religion; national origin; disability; sexual orientation; gender identity; genetic information; or military status.

PARK CITY MUNICIPAL CORPORATION DESIGN PROFESSIONAL SERVICES AGREEMENT

- C. Incorporate the foregoing provisions in all subcontracts or assignments hereunder and take such actions as may be required to ensure full compliance with the provisions of this policy.

12. ASSIGNMENTS/SUBCONTRACTING.

- A. The Design Professional shall not assign its performance under this Agreement or any portion of this Agreement without the written consent of the City, and it is further agreed that said consent must be sought in writing by the Design Professional not less than thirty (30) days prior to the date of any proposed assignment. The City reserves the right to reject without cause any such assignment. Any assignment made without the prior express written consent of the City, as required by this paragraph, shall be deemed null and void.
- B. Any work or services assigned hereunder shall be subject to each provision of this Agreement and proper bidding procedures where applicable as set forth in local, state or federal statutes, ordinance and guidelines.
- C. Any technical/professional service subcontract not listed in this Agreement, must have express advance approval by the City.
- D. Each subcontractor that physically performs services within Utah shall submit an affidavit to the Design Professional stating that the subcontractor has used E-Verify, or an equivalent program, to verify the employment status of each new employee, unless exempted by Utah Code § 63G-12-302.

13. CHANGES.

Either party may request changes to the scope of services and performance to be provided hereunder, however, no change or addition to this Agreement shall be valid or binding upon either party unless such change or addition be in writing and signed by both Parties. Such amendments shall be attached to and made part of this Agreement.

14. PROHIBITED INTEREST, NO THIRD PARTY RIGHTS AND NO GRATUITY TO CITY EMPLOYEES.

- A. No member, officer, or employee of the City shall have any interest, direct or indirect, in this Agreement or the proceeds thereof.
- B. Nothing herein is intended to confer rights of any kind in any third party.

PARK CITY MUNICIPAL CORPORATION DESIGN PROFESSIONAL SERVICES AGREEMENT

- C. No City employee who has procurement decision making authority and is engaged in the procurement process, or the process of administering a contract may knowingly receive anything of value including but not limited to gifts, meals, lodging or travel from anyone that is seeking or has a contract with the City.

15. MODIFICATIONS TO TASKS AND MISCELLANEOUS PROVISIONS.

- A. All work proposed by the Design Professional is based on current government ordinances and fees in effect as of the date of this Agreement.
- B. Any changes to current government ordinances and fees which affect the scope or cost of the services proposed may be billed as an “extra” pursuant to Paragraph 3(C), or deleted from the scope, at the option of the City.
- C. The City shall make provision for access to the property and/or project and adjacent properties, if necessary for performing the services herein.

16. TERMINATION.

- A. Either party may terminate this Agreement, in whole or in part, at any time, by at least thirty (30) days' written notice to the other party. The Design Professional shall be paid its costs, including contract close-out costs, and profit on work performed up to the time of termination. The Design Professional shall promptly submit a termination claim to the City. If the Design Professional has any property in its possession belonging to the City, the Design Professional will account for the same, and dispose of it in a manner directed by the City.
- B. If the Design Professional fails to perform in the manner called for in this Agreement, or if the Design Professional fails to comply with any other provisions of the Agreement and fails to correct such noncompliance within three (3) days' written notice thereof, the City may immediately terminate this Agreement for cause. Termination shall be effected by serving a notice of termination on the Design Professional setting forth the manner in which the Design Professional is in default. The Design Professional will only be paid for services performed in accordance with the manner of performance set forth in this Agreement.

17. NOTICE.

Notice provided for in this Agreement shall be sent by certified mail to the addresses designated for the Parties below. Notice is effective upon the date it

PARK CITY MUNICIPAL CORPORATION DESIGN PROFESSIONAL SERVICES AGREEMENT

was sent, except that a notice of termination pursuant to Paragraph 16 is effective upon receipt. All reference to “days” in this Agreement shall mean calendar days.

18. ATTORNEYS FEES AND COSTS.

If any legal proceeding is brought for the enforcement of this Agreement, or because of a dispute, breach, default, or misrepresentation in connection with any of the provisions of this Agreement, the prevailing party shall be entitled to recover from the other party, in addition to any other relief to which such party may be entitled, reasonable attorney’s fees and other costs incurred in connection with that action or proceeding.

19. JURISDICTION AND VENUE.

- A. This Agreement has been and shall be construed as having been made and delivered within the State of Utah, and it is agreed by each party hereto that this Agreement shall be governed by the laws of the State of Utah, both as to interpretation and performance.
- B. Any action of law, suit in equity, or judicial proceeding for the enforcement of this Agreement, or any provisions thereof, shall be instituted and maintained only in any of the courts of competent jurisdiction in Summit County, Utah.

20. SEVERABILITY AND NON-WAIVER.

- A. If, for any reason, any part, term, or provision of this Agreement is held by a court of the United States to be illegal, void or unenforceable, the validity of the remaining provisions shall not be affected, and the rights and obligations of the Parties shall be construed and enforced as if the Agreement did not contain the particular provision held to be invalid.
- B. If it should appear that any provision hereof is in conflict with any statutory provision of the State of Utah, said provision which may conflict therewith shall be deemed inoperative and null and void insofar as it may be in conflict therewith, and shall be deemed modified to conform in such statutory provisions.
- C. It is agreed by the Parties that the forgiveness of the non-performance of any provision of this Agreement does not constitute a subsequent waiver of the provisions of this Agreement. No waiver shall be effective unless it is in writing and signed by an authorized representative of the waiving party.

PARK CITY MUNICIPAL CORPORATION DESIGN PROFESSIONAL SERVICES AGREEMENT

21. ENTIRE AGREEMENT.

The Parties agree that this Agreement is the complete expression of the terms hereto and any oral representations or understandings not incorporated herein are excluded. Further, any modification of this Agreement shall be in writing and signed by both Parties. Failure to comply with any of the provisions stated herein shall constitute material breach of contract and cause for termination. Both Parties recognize time is of the essence in the performance of the provisions of this Agreement.

22. COUNTERPARTS. This Agreement may be executed in counterparts, each of which will be deemed an original and all of which together will constitute one and the same instrument.

23. ELECTRONIC SIGNATURES. Each party agrees that the signatures of the parties included in this Agreement, whether affixed on an original document manually and later electronically transmitted or whether affixed by an electronic signature through an electronic signature system such as DocuSign, are intended to authenticate this writing and to create a legal and enforceable agreement between the parties hereto.

PARK CITY MUNICIPAL CORPORATION DESIGN PROFESSIONAL SERVICES AGREEMENT

IN WITNESS WHEREOF the Parties hereto have caused this Agreement to be executed the day and year first hereinabove written.

PARK CITY MUNICIPAL CORPORATION, a
Utah municipal corporation
445 Marsac Avenue
Post Office Box 1480
Park City, UT 84060-1480

Matt Dias, City Manager

Attest:

City Recorder's Office

Approved as to form:

City Attorney's Office

DESIGN PROFESSIONAL NAME

Address: _____

Address: _____

City, State, Zip: _____

Tax ID#: _____

PC Business License# BL _____

Signature

Printed name

Title

THE CITY REQUIRES THE DESIGN PROFESSIONAL TO COMPLETE EITHER THE NOTARY BLOCK
OR THE UNSWORN DECLARATION, WHICH ARE BELOW.

**PARK CITY MUNICIPAL CORPORATION
DESIGN PROFESSIONAL SERVICES AGREEMENT**

STATE OF UTAH)
) ss.
COUNTY OF SUMMIT)

On this ____ day of _____, 20__, personally appeared before me _____, whose identity is personally known to me/or proved to me on the basis of satisfactory evidence and who by me duly sworn/affirmed, did say that he/she is the _____ (title or office) of _____, a _____ corporation (or limited liability company), by authority of its Bylaws/Resolution of the Board of Directors (if as to a corporation) or Operating Agreement/Member Resolution (if as to a limited liability company), and acknowledged that he/she signed it voluntarily for its stated purpose as _____ (title) for _____, a _____ corporation (or limited liability company).

Notary Public

PARK CITY MUNICIPAL CORPORATION DESIGN PROFESSIONAL SERVICES AGREEMENT

I declare under criminal penalty under the law of Utah that the foregoing is true and correct. Signed on the ____ day of _____, 20____, at _____ (insert State and County here).

Printed name _____

Signature: _____

**PARK CITY MUNICIPAL CORPORATION
DESIGN PROFESSIONAL SERVICES AGREEMENT**

EXHIBIT “A”

SCOPE OF SERVICES

**PARK CITY MUNICIPAL CORPORATION
DESIGN PROFESSIONAL SERVICES AGREEMENT**

EXHIBIT “B”

PAYMENT SCHEDULE FOR “EXTRA” WORK

Council Agenda Item Report

Meeting Date: May 5, 2022

Submitted by: Michelle Kellogg

Submitting Department: Legal

Item Type: Work Session

Agenda Section: NEW BUSINESS

Subject:

Discuss Revision and Replacement of PCMC Procurement Policy
(A) Public Input

Suggested Action:

Attachments:

[PCMC Procurement Policy Staff Report](#)
[Exhibit A: Procurement Policy](#)

City Council Staff Report

Subject: Revision and Replacement of PCMC Procurement Policy
Author: Tom Daley
Department: City Attorney's Office
Date: May 5, 2022
Type of Item: Work Session

Recommendation

Discuss the proposed Park City Municipal Corporation ("PCMC") Procurement Rules with an eye toward 1) updating and adopting these rules in the near future; 2) vacating the existing PCMC procurement policy; and 3) terminating one ancillary resolution. This internal initiative is yet another example of direction to renovate and modernize municipal policies and procedures.

Executive Summary

In general, PCMC's procurement policy has been in place in its current form for approximately 20 years. [Exhibit A Link](#). The document has been amended piecemeal over time, is no longer user-friendly, and due to recent changes in state code, needs an update.

The goal of this revision and replacement process is to propose a set of rules that meets the needs and interests of all PCMC departments while remaining within the sideboards of the Utah procurement code. The draft PCMC Procurement Rules ("Rules") included with this staff report fulfill those goals. [Exhibit B Link](#)

Background

The purposes of the Utah procurement code are straight-forward: Ensure transparency in the public procurement process; ensure fair and equitable treatment of all persons who participate in the public procurement process; provide increased economy in procurement practices; and foster effective broad-based competition within the free enterprise system.

Under the Utah procurement code, PCMC is defined as a "local government procurement unit." The code allows such procurement units the option of creating an ordinance that would supplant the application of state procurement laws to that procurement unit, or to adopt a set of rules that supplements the state procurement code.

PCMC's current policy was created at a different time and was patched up and revised on an *ad hoc* basis. In fact, some years ago staff created a "best practices" document to explain our current policy. The draft Rules included with this staff report will replace the current policy and the best practices document and Resolution X that council adopted in 2014. [Exhibit C Link](#)

It is important to note that while the City has outgrown the current policy, it has served the City well and we are not aware of any formal protests or notable issues in more than 25 years.

Analysis

Staff has concluded that adopting the Rules by resolution as a supplement to the Utah procurement code, as opposed to enacting an ordinance, best suits PCMC's needs. Staff bases its conclusions on the benefits of giving the procurement official significant authority and discretion while leaving City Council with the authority to approve large procurements and the

flexibility to amend the rules by resolution. Other Utah jurisdictions employ a variety of procurement methods that best suit their unique needs. [Exhibit D Link](#)

For as lengthy as the Utah Procurement statute is, there are very few actions or practices that are expressly prohibited. There is, however, an abundance of process. The standard procurement procedures defined by state code are: invitation for bids; requests for proposal; approved vendor list; small purchase process; and the design professional procurement process. A request for statement of qualifications is also used as a part of some of the above-described processes. While it requires use of certain procedures in limited circumstances, the code generally permits, and often requires, local jurisdictions to decide *when* to use those procedures. Essentially, the code requires that PCMC make certain rules, and that it follows those rules.

Under the Rules, larger projects and more costly procurement items would be acquired through formal bidding or requests for proposals, but alternative, less burdensome procedures exist for smaller items. For example, departments could maintain approved vendor lists and easily purchase regularly used items from those approved vendors. PCMC departments are able to use the Utah state cooperative contract system which allows the selection of a vendor or provider from the state approved vendor list without having to complete a full procurement process. (Recent examples of PCMC's use of the state approved vendor list include the purchase and installation of turf at Quinns Junction and shelves and furniture in the library).

The draft Rules before you are anchored by Articles III and IV (See Link above). Article III (Procurement Item Types and Threshold Amounts) describes the types of items that PCMC typically procures; identifies the procurement procedure that may be used to acquire that item; and sets monetary thresholds which dictate which procedure should be used and whether the procurement official or City Council has authority to approve the procurement. Article IV (Procurement Procedures) describes in detail the procurement procedures to be used.

Article I (General Provisions) sets out the purpose and scope of the Rules in addition to the defined terms. Article II (Authority) clarifies that the Utah procurement code would continue to apply in supplement to the Rules, and further states that City Council would be the "rulemaking authority" and the city manager would be the "procurement official" as those functions are defined and empowered by state code. This is the same structure that exists under PCMC's current purchasing policy. Articles V lays out exceptions and exemptions to the Rules, and Article VI states the Utah procurement code will govern the handling of protests and appeals, with the procurement official filling the role of "protest officer."

Staff recommends keeping the city manager in the procurement official position and giving the procurement official position the most discretion allowed under the state procurement code to decide which, if any, procurement procedure should be used. Procurement is a relatively rapid process, and PCMC has a high volume of procurements. Vesting discretion and spending authority in the procurement official is necessary to make the procurement process manageable, cost effective, and responsive to changes in the free market.

Generally, procurements under \$30,000 would be handled through the small purchase procedure set out in the Rules. This procedure would allow the purchase to be made without using a standard procurement procedure, but subject to some limitations that would protect against inadvertent inconsistencies with the stated purposes of the Utah procurement code. As one example, procurements may not be divided for the purpose of keeping it within the range of the small purchase procedures. The procurement official could delegate authority for the small purchase to the person making the purchase. There are innumerable small purchases needed to support ongoing, daily operations within all PCMC departments. Every effort has been made

to make these smaller procurements as efficient as possible while complying with the Utah procurement code.

The procurement official would have authority over procurements between \$30,000 and \$100,000 and the City Council would have authority over all procurements exceeding \$100,000. There are other Rules that apply to building improvement and public works projects that specify certain cost thresholds that trigger specific bidding requirements. In these instances, the Procurement Official would be obligated to strictly follow the prescribed Rules.

There are also several exemptions and exceptions that are set out in Article V of the draft Rules. The exemptions range from procuring an item from another public entity to hiring an arbitrator or outside counsel or acquiring litigation support services. The exceptions section gives the procurement official discretion to waive the procurement procedures in limited circumstances including when there is a sole source provider; a procurement process would jeopardize needed confidentiality; or where such a waiver would convenience the public. If the procurement official were to waive a procurement of greater than \$50,000, PCMC would still need to post the procurement on the PCMC website at least 7 days before the procurement is finalized. Also, in the event of a sole source procurement, state code still requires that efforts are made to achieve the best deal for PCMC.

Thus, the proposed Rules would increase the procurement official's authority from \$25,000 under the existing policy to \$100,000. Staff recommends this increase given the high volume and significant costs of PCMC procurements, as well as the comparable authority in other jurisdictions including Summit County. PCMC has a robust procurement operation and these draft Rules are aimed at making the process transparent, cost effective and efficient, and protecting the public interest.

It is important to note that the draft Rules before you are the result of a collaborative process with over 25 staff members from several PCMC departments reviewing drafts and offering comments and questions. PCMC has several staff members with significant experience and expertise with public sector procurement, contracts, and negotiation. The diverse range of perspectives among public works, budget, IT, sustainability, legal, public utilities, transit planning, police, fleet, and recreation have all contributed to the draft Rules before you today. This process has also called attention to current purchasing practices within individual departments that could be made more efficient and uniform under the proposed Rules.

Finally, the draft Rules were created with an eye toward letting experience guide future amendments to the Rules. City Council may, by resolution, amend the Rules at any time.

Funding

There is no funding associated with adopting the PCMC Procurement Rules by resolution or extinguishing the existing procurement policy and a related ordinance.

Exhibits

- Exhibit A: Existing Procurement Policy
- Exhibit B: Draft PCMC Procurement Rules
- Exhibit C: Resolution 19-14
- Exhibit D: Procurement in other Utah Jurisdictions

Park City Municipal Corporation (PCMC) Procurement Rules

Article I – General Provisions

1-1. Purpose

These Rules are intended to provide a systematic and uniform method for PCMC to follow when purchasing goods and services. The purpose of these Rules is to ensure the fair and equitable treatment of all persons who participate in the public procurement process and that purchases and service contracts are in the best interest of the public and acquired in a cost-effective and efficient manner.

1-2. Application and Scope

These Rules apply to every expenditure of public funds to acquire personal property, a technology, a service, or to commence a construction project made after [EFFECTIVE DATE], except that these Rules do not apply to acquisition of real property or acquisition of items from other public entities. Nothing in these Rules may prevent PCMC from complying with the terms and conditions of any grant, gift, bequest, or cooperative agreement. The Park City Council has adopted these Rules by resolution.

1-3. Definitions

The terms defined in this section have the meanings set forth below whenever they appear in these Rules.

“Approved Vendor List” means a list of vendors created pursuant to section 4-2(b) of these Rules.

“Bid” means a set of documents submitted by a Person in response to an Invitation for Bids. The Bid should include a price quote and be responsive to the objective evaluation criteria described in the Invitation for Bids.

“Building Improvement” means the construction or repair of a public building or structure.

“City Manager” means the City Manager of Park City Municipal Corporation.

“Construction manager/general contractor (CM/GC)” means a contractor who enters into a contract: (i) for the management of a construction project; and (ii) that allows the contractor to subcontract for additional labor and materials that are not included in the contractor’s cost proposal submitted at the time of the procurement of the contractor’s services. It does not include a contractor whose only subcontract work not included in the contractor’s cost proposal submitted as part of the procurement of the contractor’s services is to meet subcontracted portions of change orders approved within the scope of the project.

“Design-build” means the procurement of design professional services and construction by the use of a single contract.

“Design Professional Services” means professional architectural, engineering, master planning and programming, or interior design services. It does not mean any engineering or architectural services provided by PCMC employees within the scope of their employment.

“Information Technology” means all computerized and auxiliary automated information handling, including systems design and analysis; acquisition, storage, and conversion of data; computer programming; software; information storage and retrieval; voice, video, and data communications; requisite systems controls; simulation; and all related interactions between people and machines. It does not mean Professional Services.

“Invitation for Bid” means a process of soliciting sealed written bids for a Procurement Item pursuant to the procedures of section 4-1(a) of these Rules.

“Local Business” means a business having: (a) a commercial office, store, distribution center, or other place of business located within the boundaries of Summit County, with an intent to remain therein on a permanent basis; (b) a current business license issued by either Summit County or PCMC; and (c) at least one employee physically present at the local place of business.

“PCMC” means Park City Municipal Corporation, including its agents, employees, and designees. For the purposes of these Rules, PCMC includes all Park City Municipal Corporation agencies, including but not limited to the Municipal Building Authority, Park City Water Service District, Housing Agency, and the Redevelopment Agency.

“Person” means an individual, group of individuals, business organization, agency, club, committee, union, or other organization or legal entity.

“Procurement” means the acquisition of a Procurement Item through an expenditure of public funds, or an agreement to expend public funds, including an acquisition through a public-private partnership. “Procurement” does not include the acquisition of real property or a Procurement Item from another public entity.

“Procurement Item” means an item of personal property, a technology, an Information Technology, a service, or a construction project. It does not mean real property.

“Procurement Official” means the individual described in section 2-3 of these Rules.

“Professional Services” means labor, effort, or work that requires specialized knowledge, expertise, and discretion in any of the following fields: accounting; administrative law judge service; architecture; construction design and management; engineering; financial services; Information Technology; the law; medicine; psychiatry; or underwriting. It does not mean Design Professional Services; provided, however, that architecture and engineering services may be included in a Design Professional Services or a Professional Services Procurement.

“Proposal” means a set of documents submitted by a Person in response to a Request for Proposal. The Proposal may include documents such as a price quote, statement of qualifications, and scope of work offered.

“Public Works Project” means the construction of a park, recreational facility, pipeline, culvert, dam, canal, or other system for water, sewage, storm water, or flood control. It does not include the replacement or repair of existing public infrastructure on private property not within a public easement.

“Responsible” means capable, in all respects, of: (a) meeting all the requirements of a solicitation; and (b) fully performing all the requirements of the contract resulting from the solicitation, including being financially solvent with sufficient financial resources to perform the contract.

“Responsive” means a Solicitation Response that conforms in all material respects to the requirements of a solicitation.

“Request for Proposals (RFP)” means the process described in section 4-1(b) of these Rules.

“Request for Statement of Qualifications (RSOQ)” means the process described in section 4-1(c) of these Rules.

“Rulemaking Authority” means the Park City Council or its designee, as described in section 2-2 of these Rules.

“Small Purchase Process” means the process described in section 4-2(a) of these Rules.

“Solicitation Response” means a Statement of Qualifications, Proposal, or Bid.

“Standard Procurement Process” means the bidding process; the request for proposal process; the approved vendor list process; the small purchase process; or the design professional procurement process.

“State Cooperative Contract” means a contract awarded by the Utah Division of Purchasing and General Services for and on behalf of all public entities, as described in section 4-2(c) of these Rules.

“Statement of Qualifications (SOQ)” means a document submitted to PCMC in response to a Request for Statement of Qualifications.

“Unsolicited Proposal” means a written Proposal, not submitted in response to a solicitation for a public-private partnership for: (1) an infrastructure project; or (2) a project to collect, analyze, and distribute health data to improve health and health care and to facilitate interaction regarding health and health care issues.

Article II – Authority

2-1. Application of State Code.

These Rules are intended to operate within the parameters of the Utah procurement code. All applicable provisions and requirements of the Utah procurement code continue to apply

notwithstanding anything in these Rules. PCMC Procurements will at all times comply with the Utah procurement code.

2-2. Rulemaking Authority

PCMC is defined as a local government procurement unit by the Utah procurement code. The Park City Council has authority to make rules relating to the management and control of all Procurements, including adoption and amendment of these Rules. PCMC may not adopt rules, policies, or regulations that are inconsistent with the Utah procurement code.

2-3. Procurement Official

By these Rules the Park City Council hereby designates the City Manager to be PCMC's Procurement Official as defined by the Utah procurement code. The Procurement Official has all the powers and responsibilities described in these Rules and in the Utah procurement code. The Procurement Official may delegate in writing any of these powers or responsibilities to any PCMC employee. Such delegation will remain in effect until modified or revoked in writing.

Article III – Procurement Item Types and Threshold Amounts

3-1. Supplies, Equipment, General Services, and General Construction. The following provisions prescribe the Procurement procedures for Procurement Items that are not Professional Services, Design Professional Services, Building Improvements, Public Works Projects, or Information Technology.

- a. Small Purchases.** Procurements of supplies, equipment, or services of \$30,000 or less shall be procured via the Small Purchase Process described in section 4-2(a) of these Rules.
- b. Intermediate Procurements.** Procurements of supplies, equipment, or services of more than \$30,000 but less than \$100,000 shall be authorized by the Procurement Official. At the discretion of the Procurement Official, such Procurements may be made by either:
 1. an RFP delivered to at least three Responsible parties; or
 2. an Invitation for Bids.
- c. Major Procurements.** Procurements of supplies, equipment, or services of over \$100,000 shall be authorized by the Park City Council. At the discretion of the Procurement Official, such Procurements may be made by either:
 1. an RFP delivered to at least three Responsible parties; or
 2. an Invitation for Bids.

3-2. Building Improvements and Public Works Projects

- a. Estimate required.** Any department seeking a Building Improvement or Public Works Project shall prepare, in coordination with the Procurement Official, an estimate of such project.
- b. Bid Limits.** Pursuant to Utah Code section 11-39-103, as amended or replaced, with the exception of emergency repairs, PCMC will procure a Building Improvement or Public

Works Project by Invitation to Bid if the estimated costs are greater than the following amounts:

1. for Building Improvements: \$59,374 as of 2022.
2. For Public Works Projects: \$185,545 as of 2022.

The above thresholds will increase yearly by the lesser of 3% or the actual percent change in the Consumer Price Index during the previous year. The cost of the Building Improvement or Public Works Project may not be divided to avoid these thresholds.

c. Procurements under the Bid Limit. Based on the estimate described in subsection (1), the following procedures apply:

1. Procurements of Building Improvements or Public Works Projects of \$30,000 or less shall be procured via the Small Purchase Process described in section 4-2(a) of these Rules.
2. Procurements of Building Improvements greater than \$30,000 but less than the Bid Limit for Building Improvements shall be authorized by the Procurement Official. At the discretion of the Procurement Official, such Procurements may be made by either RFP or Invitation for Bids.
3. Procurements of Public Works Projects greater than \$30,000 but less than \$100,000 shall be authorized by the Procurement Official. At the discretion of the Procurement Official, such Procurements may be made by either RFP or Invitation for Bids.
4. Procurements of Public Works Projects of greater than or equal to \$100,000 but less than the Bid Limit for Public Works Projects shall, at the discretion of the Procurement Official, be made by either RFP or Invitation for Bids. The Park City Council has ultimate authority to approve Public Works Projects within this range.

d. Procurements over the Bid Limit. If the estimate described in subsection (a) exceeds the bid limit described in subsection (b) of this section 3-2, the Building Improvement or Public Works Project must be procured using an Invitation for Bids. The procedures of section 4-1(a) of these Rules will apply, with the following additions:

1. Notice shall also be published: (1) at least seven days before opening the bids, and left published for at least three days, in at least five public places in Park City; and (2) on a state website that is owned, managed by, or provided under contract with the Utah Division of Purchasing and General Services for posting a public procurement notice. Notice may also be published on any website designed to facilitate the public Procurement process.
2. If PCMC rejects all bids submitted, PCMC shall again request an Invitation for Bids as provided in this subsection. If PCMC again determines that no satisfactory bid has been submitted, PCMC may undertake the Building Improvement or Public Works Project as the PCMC deems appropriate.
3. The Park City Council has ultimate authority to approve Building Improvement and Public Works Projects that exceed the bid limit described in subsection (b) of this section 3-2.

3-3. Professional Services

- a. **Small Purchases.** Contracts for Professional Services less than \$30,000 shall be procured via the Small Purchase Process as described in Section 4-2(a) of these Rules.
- b. **Intermediate Procurements.** Contracts for Professional Services more than \$30,000 but less than \$100,000 shall be authorized by the Procurement Official. Such Procurements shall be made by an RFP delivered to at least three Responsible Parties or by notice as described in Section 4-1(b) of these Rules. When selecting the winning Proposal, special consideration may be given to the quality of service delivered and/or the qualifications of the proposer.
- c. **Major Procurements.** Such Procurements shall be made by an RFP delivered to at least three Responsible Parties. When selecting the winning Proposal, special consideration may be given to the quality of service delivered or the qualifications of the proposer. The Park City Council has ultimate authority to approve Procurements of Professional Services exceeding \$100,000.

3-4. Design Professional Services

- a. **Small Purchases.** Contracts for Design Professional Services less than \$30,000 shall be procured via the Small Purchase Process as described in section 4-2(a) of these Rules.
- b. **Intermediate Procurements.** Contracts for Design Professional Services more than \$30,000 but less than \$100,000 shall be authorized by the Procurement Official. Such Procurements shall be made pursuant to the Design Professional Services Procurement Process described in section 4-2(d) of these Rules. When selecting the winning Proposal, special consideration may be given to the quality of service delivered and/or the qualifications of the proposer.
- c. **Major Procurements.** Procurements of Design Professional Services over \$100,000 shall be made pursuant to the Design Professional Services Procurement Process described in section 4-2(d) of these Rules. When selecting the winning Proposal, special consideration may be given to the quality of service delivered or the qualifications of the proposer. The Park City Council has ultimate authority to approve Procurements of Design Professional Services exceeding \$100,000.

3-5. Information Technology. The Procurement Official has authority over Procurements of Information Technology and may designate an appropriate Standard Procurement Process and may approve any Procurement of Information Technology up to \$100,000. The Park City Council has ultimate authority to approve Procurements of Information Technology exceeding \$100,000.

ARTICLE IV—PROCUREMENT PROCEDURES

4-1. Standard Procurement Procedures

- a. **Invitation for Bids**

1. **Purpose.** An Invitation for Bids is typically used to acquire Procurement Items with easily definable characteristics. In such situations, PCMC is seeking the lowest price.
 2. **Content.** An Invitation for Bids must include the following:
 - a. a description of the Procurement Item sought;
 - b. instructions for submitting a Bid, including the deadline for submission;
 - c. the objective criteria that PCMC will use to evaluate bids;
 - d. information about the time and manner of opening Bids; and
 - e. terms and conditions that PCMC intends to include in a contract resulting from the bidding process.
 3. **Publication.** Notice of an Invitation for Bids shall be published on PCMC's website and on the Utah Division of Purchasing and General Services website at least seven days before the day of the deadline for submission. Notice may also be published in a newspaper of general circulation or on any website designed to facilitate the public Procurement process.
 4. **Processing Bids.** PCMC shall not open a Bid until after the deadline for submission. PCMC shall open Bids in conformity with the time and manner described in the Invitation for Bids. A Person who submits a Bid may not, after the deadline, make a change to a Bid if the Procurement Official determines, in his/her discretion, that such a change would be prejudicial to PCMC's interests or fair competition.
 5. **Evaluation of Bids.** PCMC shall evaluate Bids: (1) using the objective criteria described in the Invitation for Bids; and (2) seeking to achieve the greatest long-term value to PCMC. Criteria not described in the Invitation for Bid may not be used to evaluate a Bid.
 6. **Award of Contract.** After evaluating the Bids, PCMC shall:
 - a. award a contract to the Responsible bidder who submits the lowest Responsive Bid and publish on PCMC's website the name and bid amount of the bidder to whom the contract is awarded; or
 - b. cancel the Invitation for Bids and publish on PCMC's website notice of the cancellation that includes an explanation of the reasons for cancellation.
 7. **Local Business Matching.** If the Responsible bidder who submits the lowest Responsive Bid is not a Local Business, and a Responsible Local Business submits a Responsive Bid that is within 5% of such lowest bid, PCMC shall offer such Local Business an opportunity to match the lowest bid. If the Local Business agrees to match the lowest bid, PCMC shall award the contract to the Local Business at that price. If more than one Responsible Local Business submits a Responsive Bid within 5% of the lowest Bid under this paragraph, the opportunity to match the lowest bid shall first be given to the Local Business with the lowest Bid, and next to the Local Business with the second-lowest Bid, and so forth.
 8. **Tie Bids.** The Procurement Official shall resolve tie bids in a fair manner, as determined in writing by the Procurement Official.
- b. **Request for Proposals (RFP)**
1. **Purpose.** An RFP is typically used to acquire Procurement Items when the scope of a desired item is not easily definable and when the award will be based on more than

price. In these situations, PCMC may negotiate details of the Procurement with a potential vendor before a contract is awarded.

2. **Content.** An RFP must include the following:
 - a. a description of the Procurement Item sought;
 - b. instructions for submitting a Proposal, including the deadline for submission;
 - c. the objective criteria, including, if applicable, cost, and subjective criteria that PCMC will use to evaluate Proposals;
 - d. information about the time and manner of opening Proposals; and
 - e. terms and conditions that PCMC intends to include in a contract resulting from the RFP process.
3. **Publication.** Notice of an RFP shall be published on PCMC's website and on the Utah Division of Purchasing and General Services website at least seven days before the day of the deadline for submission. Notice may also be published in a newspaper of general circulation and/or on any website designed to facilitate the public Procurement process.
4. **Processing Proposals.** PCMC shall accept Proposals as provided in the RFP and may not open a Proposal until after the deadline for submitting Proposals. PCMC may not disclose the contents of a Proposal to the public or to another proposer, except as provided in the Government Records Access and Management Act. A proposer may not, after the deadline, make a change to a Proposal if the Procurement Official determines, in the Procurement Official's discretion, that such a change would be prejudicial to PCMC's interests or fair competition. PCMC may have discussions with a proposer to obtain a more complete understanding of whether the proposer is Responsible, or the proposer's Proposal is Responsive.
5. **RFP Addendum.** After the deadline for submitting Proposals, PCMC may, at the discretion of the Procurement Official, issue an RFP addendum that has limited application only to Persons who have submitted Proposals. Such addendum may be issued only if it does not change the RFP in a way that, in the opinion of the Procurement Official, would likely have affected the number of Proposals submitted had the addendum been included in the original RFP.
6. **Evaluation of Proposals.**
 - a. **Evaluation Committee Formation.** The Procurement Official shall appoint an evaluation committee of at least three members to evaluate the Proposals received. Committee members shall have at least a general familiarity with or basic understanding of the technical requirements relating to the type of Procurement Item sought or of the need that the Procurement Item is intended to address. Further, the members shall: not have a conflict of interest with any of the proposers under consideration; be able to fairly evaluate each received Proposal; not communicate with any of the proposers concerning the Proposals outside this evaluation committee process; and conduct the evaluation in a manner that ensures a fair and competitive process and avoids the appearance of impropriety.

- b. **Evaluation Process.** The evaluation committee shall evaluate proposals in accordance with the process described in the RFP. The Procurement Official may authorize the evaluation committee to receive assistance from an expert or consultant to better understand a technical issue involved in the Procurement. A committee member is prohibited from knowing or having access to information relating to the cost of a Proposal until the committee submits its recommendation based on all other, non-cost criteria, except that the Procurement Official may waive this prohibition by signing a written statement indicating why such waiver is in the best interests of PCMC. The committee's deliberations may be held in private.
 - c. **Recommendation.** The evaluation committee shall submit to the Procurement Official a written recommendation that:
 - i. recommends a Proposal for an award of a contract, if the evaluation committee decides to recommend a Proposal;
 - ii. contains the score awarded to the recommended Proposal based on the criteria stated in the RFP; and
 - iii. explains how the recommended Proposal provides the best value to PCMC.
 - d. The above criteria for written recommendation do not apply to a contract for a CM/GC if the contract is based solely on the qualifications of the CM/GC and on the management fee to be paid to the CM/GC.
- 7. **Best and Final Offers.** In certain circumstances where the standard RFP process described in this section does not result in a clear recommendation, PCMC may, with the approval of the Procurement Official, request best and final offers from Responsible proposers as described in Utah Code section 63G-6a-707.5. The best-and-final-offer process may only be used when:
 - a. no single Proposal adequately addresses all the specifications stated in the RFP;
 - b. all Proposals are unclear or deficient in one or more respects;
 - c. all cost proposals exceed the identified budget or PCMC's available funding; or
 - d. two or more Proposals receive an identical evaluation score that is the highest score.
- 8. **Award of Contract.** Upon receiving a recommendation from the evaluation committee, PCMC may award a contract to the recommended proposer based on the Proposal.
- c. **Request for Statement of Qualifications (RSOQ).**
 - 1. **Purpose.** Before soliciting written quotations, initiating an RFP or Invitation for Bids, or creating an Approved Vendor List, PCMC may wish to obtain information regarding the qualifications and/or capabilities of potential vendors.
 - 2. **Content.** The content of an RSOQ will depend on its purpose.
 - a. An RSOQ associated with an RFP or Invitation for Bids must include:

- i. a statement that participation in the RFP or Invitation for Bids is limited to qualified vendors; and
 - ii. the minimum mandatory requirements, evaluation criteria, and applicable score thresholds that will be used to identify qualified vendors. See [Utah Code section 63G-6a-410\(4\)\(b\)](#) for examples of selection criteria.
 - b. An RSOQ associated with an Approved Vendor List must include:
 - i. a general description of the Procurement Item, type of project, process PCMC will use to acquire the Procurement Item, or type of vendor PCMC is seeking;
 - ii. the minimum mandatory requirements, evaluation criteria, and applicable score thresholds that vendors are required to meet;
 - iii. a statement that only Responsive, Responsible vendors which meet the above score thresholds will be included on the Approved Vendor List;
 - iv. a statement that only approved vendors will be able to participate in the Procurements described in the RSOQ;
 - v. a statement indicating whether PCMC will use a performance rating system for evaluating the performance of vendors on the Approved Vendor List;
 - vi. a deadline by which the vendor must submit a Statement of Qualifications; and
 - vii. a statement that the vendor must submit updated qualifications every 18 months, at a minimum, to be retained on the Approved Vendor List.
- 3. Publication.** Notice of an Invitation for Bids shall be published on PCMC's website and on the Utah Division of Purchasing and General Services website at least seven days before the day of the deadline for submission. Notice may also be published in a newspaper of general circulation or on any website designed to facilitate the public Procurement process.
- 4. Selection.**
- a. Evaluation Committee. Upon publishing an RSOQ, Procurement Official shall appoint an evaluation committee. The committee shall consist of at least three members with a general familiarity of the Procurement Item related to the RSOQ. The committee shall evaluate and score each received Statement of Qualifications using evaluation criteria published in the RSOQ.
 - b. Final Selection. The Procurement Official shall make a final determination, based on the scores presented by the evaluation committee, of which vendors to include in a subsequent Invitation for Bids, RFP, or on an Approved Vendor List, as the case may be. The Procurement Official may also reduce the number of individuals required on the evaluation committee if they determine, in writing, that the evaluation

criteria: (1) consist of only objective criteria; and (2) do not include any subjective criterion that requires analysis, assessment, or deliberation.

4-2. Supplementary Procurement Procedures

a. Small Purchase Process

- 1. Application.** The Small Purchase Process is used for lower-cost Procurements, when use of the standard procurement procedures described in Section 4-1 of these Rules would not be efficient or in the best interests of PCMC. This process does not apply to regularly scheduled payments for a Procurement Item obtained under another Procurement procedure.
- 2. Annual Cumulative Threshold.** No more than \$100,000 worth of Procurement Items may be obtained from a given vendor in a single calendar year under this provision. This limit applies to single, ongoing, continuous, and regularly scheduled Procurements.
- 3. Process.** The Person with authority to acquire a Procurement Item under this Section shall make reasonable efforts to obtain at least three written quotations from potential vendors. A record of such quotations must be maintained for at least 12 months and may be used to facilitate future Procurements.
- 4. Prohibition on Subdivision.** A Person shall not subdivide a single Procurement into multiple, smaller Procurements to acquire the Procurement Item through the Small Purchase Process. A Person violating this paragraph may be subject to criminal penalties.

b. Approved Vendor Lists

- 1. Types.** PCMC may maintain Approved Vendor Lists for:
 - a.** specific Procurement Items; or
 - b.** future, generally defined Procurement Items.
- 2. Vendor Selection.** Vendors shall be selected for an Approved Vendor List using the RSOQ process described in section 4-1(c). The Procurement Official shall include on the Approved Vendor List any vendors satisfying the minimum criteria stated in the RSOQ and shall reject any vendors failing to satisfy the minimum criteria.
- 3. List Usage.** PCMC may:
 - a.** limit participation in an Invitation for Bids or RFP to vendors on an Approved Vendor List for a relevant Procurement Item;
 - b.** acquire a Procurement Item from a vendor on an Approved Vendor List at a price based on a price list, rate schedule, or price catalog submitted by a vendor and accepted by PCMC; and
 - c.** may acquire a “small purchase,” as described in sections 3-1 to 3-4 of these Rules from a vendor on an Approved Vendor List without any additional competitive-pricing procedures. When making such Procurements, PCMC shall make all reasonable efforts to rotate between vendors on an Approved Vendor List to ensure that all such vendors receive equal treatment.

4. **Publication.** An Approved Vendor List shall be published on the PCMC website.
5. **List Maintenance.** PCMC shall verify every 18 months, at a minimum, that each vendor on an Approved Vendor List continues to satisfy the minimum criteria for inclusion on the list.

c. State Cooperative Contracts

1. **Purpose.** The Utah Division of Purchasing and General Services (“Division”) has executed State Cooperative Contracts with certain vendors of commonly used Procurement Items. The Division maintains such contracts for and on behalf of all public entities within the state. By negotiating certain contracts at the state level, the Division seeks to leverage the potential buying power of all state entities and to streamline the Procurement process. Typically, PCMC can directly acquire Procurement Items at a fixed cost under a State Cooperative Contract without signing a participating addendum or conducting any standard Procurement procedure as would otherwise be required by these Rules.
2. **No Requirement to Use.** PCMC is not required to utilize State Cooperative Contracts. Similarly, the Division does not guarantee that State Cooperative Contracts yield the best value for a given Procurement Item. In fact, the Division recognizes that public entities can overpay for Procurement Items available by State Cooperative Contracts when those entities forego competitive Standard Procurement Procedures.
3. **Procedures.**
 - a. **Availability.** All State Cooperative Contracts can be found on the Division’s website.
 - b. **Authorization.** Nothing in this subsection exempts the authorization requirements for Procurement Items provided in Article III of these Rules. If a Procurement must be authorized by the Procurement Official or PCMC Council, the Procurement Official may decide in his/her sole discretion what, if any, additional competitive pricing or Procurement procedures will be conducted before utilizing a State Cooperative Contract.
 - c. **Quotes.** In many cases, a certain Procurement Item may be acquired under multiple State Cooperative Contracts with different vendors. Additionally, vendors may offer bulk discounts. For these reasons, PCMC should obtain one or more written quotes from vendors under State Cooperative Contracts before acquiring a Procurement Item from a State Cooperative Contract.
 - d. **Contract Review.** Before acquiring a Procurement Item under a State Cooperative Contract, the Procurement Official shall first review the Division’s contract with the vendor to ensure that it: (1) satisfies statutory requirements of a State Cooperative Contract; and (2) extends to PCMC all necessary contractual protections, such as indemnification, liability, and insurance provisions.

- e. Subject to paragraphs (b), (c), and (d) above, PCMC may acquire a Procurement Item under a State Cooperative Contract without conducting any competitive Procurement procedures as would otherwise be required by these Rules.

d. Design Professional Services Procurement Process

1. **Modified RSOQ Required.** PCMC shall procure Design Professional Services via a modified RSOQ, as described in this section.
2. **Content.** The RSOQ may not include a request for a price or a cost component for the Design Professional Services. The RSOQ must include criteria by which the qualification of a design professional will be evaluated. Examples of such criteria include:
 - a. the design professional's work history and experience;
 - b. performance ratings earned by the design professional or references for similar work;
 - c. any quality assurance or quality control plan;
 - d. the quality of the design professional's past work product;
 - e. the time, manner of delivery, and schedule of delivery of the Design Professional Services;
 - f. the design professional's financial solvency;
 - g. any management plan, including key personnel and subconsultants for the project; and
 - h. other project specific criteria that the procurement unit establishes.
3. **Publication.** Notice of an Invitation for Bids shall be published on PCMC's website and on the Utah Division of Purchasing and General Services website at least seven days before the day of the deadline for submission. Notice may also be published in a newspaper of general circulation and/or on any website designed to facilitate the public Procurement process. Additionally, the Procurement Official shall encourage design professionals engaged in the lawful practice of their profession to submit an SOQ.
4. **Evaluation Committee Formation.** The Procurement Official shall appoint an evaluation committee consisting of at least three members. The members shall: not have a conflict of interest with any of the design professionals under consideration; be able to fairly evaluate each received SOQ; not communicate with any of the design professionals concerning the RSOQ outside this evaluation committee process; and conduct the evaluation in a manner that ensures a fair and competitive process and avoids the appearance of impropriety.
5. **Evaluation of SOQs.** The evaluation committee shall consider at least three SOQs, either received in response to the RSOQ or already on file as part of an Approved Vendor List. The committee shall evaluate and score, based solely on the criteria published in the RSOQ, each Responsive SOQ. The committee may conduct discussions or interviews with, or attend presentations by, any design professional under consideration. The committee shall then rank in order the top three highest scoring design professionals. The committee shall not consider any

SOQ for Design Professional Services submitted by a public entity. The committee's deliberations may be held in private.

6. **Compensation Negotiation.** The Procurement Official shall conduct compensation negotiations with the highest-scoring design professional. If the Procurement Official determines in writing that the design professional can provide the requested services for fair and reasonable compensation, the Procurement Official shall award the contract to that design professional. If no fair and reasonable compensation can be negotiated, the Procurement Official shall formally terminate negotiations with the design professional and undertake negotiations with the second-highest scoring design professional, repeating this process as necessary.
7. The Design Professional Services Procurement Process may be used to procure design-build services.

e. Unsolicited Proposals

1. **Freedom to Submit.** A person may submit an Unsolicited Proposal to PCMC at any time, except that an Unsolicited Proposal may not be used to seek PCMC's consideration of a Proposal submitted in response to an RFP after the deadline specified in the RFP.

2. **Content.** An Unsolicited Proposal must include:

- a. a reference to this section and a statement that the Unsolicited Proposal is submitted under this section or under the Utah procurement code;
- b. a conceptual description of the project that constitutes the Procurement Item that is the subject of the proposed public-private partnership;
- c. a description of the economic benefit of the project to the state and PCMC;
- d. information concerning the services or facilities currently being provided by the state or PCMC that are similar to the project;
- e. an estimate of the project costs for design, implementation, operation and maintenance, and any other related project cost; and
- f. the name, address, telephone number, and email address of an individual who may be contacted for further information concerning the Unsolicited Proposal.

3. **Processing Unsolicited Proposals.**

- a. PCMC is not required to consider an Unsolicited Proposal.
- b. PCMC may, at the discretion of the Procurement Official, charge a person submitting an Unsolicited Proposal a fee to cover the actual cost of processing, considering, and evaluating the Unsolicited Proposal.
- c. A contract for the Procurement Item described in the Unsolicited Proposal may not be awarded unless PCMC first engages in a Standard Procurement Process, as provided in Article IV of these Rules, to acquire the Procurement Item described in the Unsolicited Proposal.

- d. If PCMC engages in a Standard Procurement Process pursuant to paragraph (iii), PCMC shall treat an Unsolicited Proposal as though it were submitted as a response to the Standard Procurement Process. Additionally, a Person who has submitted an Unsolicited Proposal may, within the time provided in the Standard Procurement Process, modify the Unsolicited Proposal to the extent necessary to address matters raised in the Standard Procurement Process that were not addressed in the initial Unsolicited Proposal.

Article V – Exemptions and Exceptions

5-1. Exemptions. The following are exempt from the requirements of these Rules:

- a. acquisitions of a Procurement Item from another public entity;
- b. acquisition or disposal of real property or an interest in real property;
- c. grants;
- d. supplies purchased for resale to the public;
- e. hiring of a mediator, arbitrator, or arbitration panel member to participate in dispute resolution efforts related to Procurement matters;
- f. retaining outside counsel or acquiring litigation support services, including expert witnesses; and
- g. Purchases of incidental items in the course of daily, ongoing departmental operations that are identified in an approved department budget. Examples of items exempt under this subsection include, but are not limited to, professional development and training, hand tools, office supplies, and miscellaneous travel expenses.

5-2. Exceptions. The following exceptions to the requirements of these Rules may be granted.

a. Discretionary Waiver of Standard Procurement Process.

- 1. Requirements. The Procurement Official may waive any requirements of these Rules when the Procurement Official determines in writing that:
 - 1. there is only one source for the Procurement Item;
 - 2. transitional costs are a significant consideration in selecting a procurement item, the results of a cost-benefit analysis demonstrate that transitional costs are unreasonable or cost-prohibitive, and the award of a contract without engaging in a Standard Procurement Process is in the best interest of PCMC; or
 - 3. the award of a contract is under circumstances that make awarding the contract through a Standard Procurement Process impractical and not in the best interest of PCMC. Such circumstances include, but are not limited to, the following:
 - a. the Procurement Item is available from a sole source, or a Procurement procedure would be unlikely to produce competition.
 - b. a particular Procurement Item is of particular benefit to PCMC in order to match existing equipment or facilities.

- c. PCMC needs particular services in connection with confidential matters, and a Procurement procedure would undermine that confidentiality or not be beneficial in obtaining the services.
 - d. waiver of any requirements of these Rules would convenience the public.
 - 2. Notice. If requirements of these Rules are waived under subsection (a), PCMC shall nonetheless publish notice of the Procurement on the PCMC website at least seven days before the Procurement is finalized if the cost of the Procurement exceeds \$50,000. Such notice is not required if the Procurement is for public utility services pursuant to a sole source contract.
 - 3. Best Interest. If requirements of these Rules are waived under subsection (a), the Procurement Official shall nonetheless negotiate with the vendor to ensure that the terms of the Procurement are in the best interest of PCMC.
- b. Trial Use Contracts.**
 - 1. Requirements. PCMC may award a trial use contract without following the requirements of these Rules if the purpose of the contract is to: (i) determine whether the Procurement item will benefit PCMC; (ii) assess the feasibility of a Procurement Item that is new or innovative or has a proposed use or application that is novel or unproven; or (iii) evaluate whether to conduct a Standard Procurement Process for the Procurement Item being tested. Further, the contract must be: (i) awarded for a Procurement Item not already available to PCMC under an existing contract; (ii) restricted to the Procurement of a Procurement Item in the minimum quantity and for the minimum period of time necessary to test it; (iii) PCMC's only trial use contract for that Procurement Item; and (iv) not used to circumvent the purposes and policies of these Rules or the Utah procurement code. Transit's rider information software is an example of a trial use contract.
 - 2. Term. The period of trial use or testing of a Procurement Item under a trial use contract may not exceed 24 months unless the Procurement Official provides a written exception documenting the reason for a longer period.
 - 3. Content. A trial use contract must:
 - a. state that the contract is strictly for the trial use or testing of a Procurement Item;
 - b. state that the contract terminates upon completion of the trial use or testing period;
 - c. state that PCMC is not obligated to purchase or enter into a contract for the Procurement Item, regardless of the trial use or testing result;
 - d. state that any purchase of the Procurement Item that is the subject of the trial use contract will be made in accordance with these Rules and the Utah procurement code; and
 - e. include, as applicable, any additional requirements related to the trial use or testing of the Procurement Item.
 - 4. Publication. Publication is not required for a trial use contract.
- c. Contract Extensions.**

1. Requirements. The Procurement Official may extend a contract for a Procurement Item without engaging in a Procurement process if:
 - a. PCMC is engaged in a Standard Procurement Process for that Procurement Item and the Standard Procurement Process is delayed due to an unintentional error;
 - b. a change in an industry standard requires one or more significant changes to specifications for the Procurement Item; or
 - c. (iii) an extension is necessary: to prevent the loss of federal funds, to mitigate the effects of a delay of a state or federal appropriation, to enable PCMC to continue to receive a Procurement Item during a delay in the implementation of a contract awarded pursuant to a Procurement that has already been conducted; or to enable PCMC to continue to receive a Procurement Item during a period of time in which negotiations with a vendor under a new contract for the Procurement Item are being conducted.
 - d. In addition, the contract extension must be necessary to avoid a lapse in a critical government service or to mitigate a circumstance that is likely to have a negative impact on public health, safety, welfare, or property.
2. Term. The period of the contract extension may not exceed 120 days, except a contract may be extended:
 - a. for the period of a protest, appeal, or court action, if the protest, appeal, or court action is the reason for delaying a new Procurement; or
 - b. for a period of time exceeding 120 days, if, after consulting with the PCMC Attorney, the Procurement Official determines in writing that the contract extension does not violate state or federal antitrust laws and is consistent with the purpose of ensuring the fair and equitable treatment of all persons who deal with the Procurement process.
- d. **Emergency Procurements.** The procurement official may waive any requirement of these Rules if such waiver is necessary to:
 1. avoid a lapse in a critical government service;
 2. mitigate a circumstance that is likely to have a negative impact on public health, safety, welfare, or property, including a natural disaster; or
 3. protect the legal interests of a public entity.

Any Procurement made pursuant to this provision must be made with as much competition as reasonably practicable. Within 14 days of such Procurement, PCMC shall publish on its website a description of the emergency necessitating the Procurement, the name of the highest-ranking government official who approved the Procurement, and each written contract related to the Procurement. The term of a contract executed under this provision may be no more than 30 days, except that a contract related to a natural disaster may be no longer than 60 days. These term limits do not apply to an emergency Procurement for legal services.

Article VI – Protests

6-1. Protests and Appeals

- a. Procedures.** The Utah procurement code governs any protest or appeal related to a PCMC Procurement matter.
- b. Protest Officer.** The Procurement Official shall be PCMC's protest officer.
- c. Intervention.** A Person may intervene in a protest according to the following provisions:
 - 1. Time to File.** After a protest conforming to the Utah procurement code is filed with PCMC, a Person seeking to intervene must file with the protest officer a motion to intervene no later than 10 days after the filing of the protest.
 - 2. Contents of Motion to Intervene.** A Motion to Intervene must state the Person's interest in sufficient factual detail to demonstrate that:
 - a.** the person seeking to intervene has a right to participate which is expressly conferred by statute or by PCMC rule, order, or other action; and
 - b.** the person seeking to intervene has or represents an interest which may be directly affected by the outcome of the proceeding, including any interest as a consumer, customer, competitor, or security holder of a party.A copy of the motion to intervene shall be sent to the Person protesting the Procurement.
 - 3. Granting of Motion.** The protest officer may grant the motion to intervene if, in the opinion of the protest officer, the motion satisfies the requirements of paragraph (b) of this subsection.
- d. Suspension and Debarment.** Pursuant to the Utah procurement code, the Procurement Official may debar or suspend from consideration for award of a Procurement any Person.