Subject:	**Overview and Update on Transportation Planning Studies**
Author:	**Alfred Knotts, Transportation Planning Manager**
Department:	**Community Development/Transportation Planning**
Date:	**June 17, 2016**
Type of Item:	**Informational – Memorandum**

Executive Summary:
Following a mid-year review of the 2014 City Council Priorities, "Transportation" and "Housing" were escalated to "Critical Priorities", which are issues that could have a significant negative impact on our community if not addressed expeditiously. As such, Council directed staff to revisit the General Plan and other transportation specific documents specifically the accelerated implementation of the 2011 Traffic and Transportation Master Plan and action elements from other related transportation plans/studies. Following the re-evaluating of existing guidance documents, Transportation Planning and Public Works/Transit staff developed "Focus Areas" which are as follows:

- Transit Planning
- Transportation Demand Management
- Parking Management
- Congestion Management
- Corridor Planning

Acronyms used in this report:
TTMP –Traffic and Transportation Master Plan
TDM – Transportation Demand Management
UDOT – Utah Department of Transportation

Background:

In 2011, the City Council adopted the TTMP which set out certain targets in order to develop a more robust multi-modal transportation system. The Introduction to the Plan states:

"As Park City and its surrounding area becomes an increasingly popular place to live, work, and recreate, the demands on its transportation system begin to take on a higher priority among city leaders. This transportation plan is intended to address multi-modal transportation needs of Park City to the year 2040. To that end, there are three "themes" that emerged about the nature of transportation, traffic congestion and Park City's future transportation vision during this process.

- *Traffic congestion on "Gateway Corridors" (SR-224 and Kearns Boulevard) should not be a limiting factor to growth in Park City.*

- *Multi-modal approaches to traffic management beginning on Gateway corridors and continuing in Park City will be necessary to avoid traffic problems that put quality of life in conflict with sustainable growth.*

- *This approach requires Park City to accept some level of traffic congestion and that this level must continually be evaluated and balanced with overall community support.*

These themes form the foundation for this transportation plan. This plan outlines a series of steps that embrace a multi-modal approach which establish a path for mid-term and long-term evolution towards a transportation environment that is less reliant on the single-occupant vehicle."

In addition to the "themes" outlined in the 2011 TTMP, the 2014 General Plan provides very clear guidance in terms of goals, objectives, and implementation strategies as they relate to transportation planning, projects, and programs. These are included in this memorandum as "Attachment A."

Analysis

Consistent with the TTMP and General Plan, several planning efforts were commissioned by Council City under the direction of staff. Below is an overview of each of the plans under development and/or recently complete. In addition to the overview on the planning efforts, Transportation Planning staff has also provided sections on implementation and project/plan's relationship to the 2014 General Plan.

SR 248 Corridor Plan Update

Overview

Council adopted the Entry Corridors Management Strategic Plan on March 20th, 2006. This strategic plan set forth objectives for the management of transportation and traffic along the City's entry corridor's (SR-224, SR-248 and Bonanza Drive). One of the key objectives identified in the strategic document is, "to gain a thorough understanding of volumes and travel patterns that make up the current and future traffic conditions along the entry corridors." Another key objective identified in the plan is, "ensure current capacity of entry corridors are utilized effectively before expanding roads or related infrastructure."

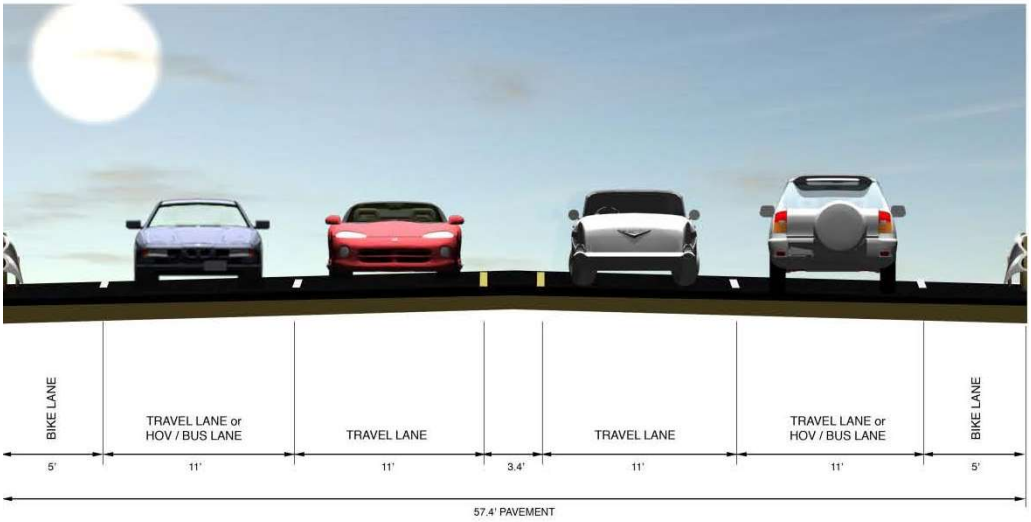
In 2008 SR 248 Corridor Management Plan was initiated. This plan was completed in 2009 formally adopted by Council on February 12th, 2009. A copy of the "SR-248 Corridor Plan" can be accessed via the link below:

http://52.26.130.11/Home/ShowDocument?id=8433

Upon completion and subsequent adoption of the 2009 plan, traffic volumes on the SR 248 Corridor began to level off and traffic growth and delays on the corridor were not approaching levels of failure as projected. This phenomenon can be mostly attributed to the downturn in the local, state, and national economy therefore recommendations within the plan did not proceed into Project Development.

In early 2014, Council elevated transportation and congestion to a "Critical Priority" as such staff allocated resources to develop a supplement to the 2009 plan to re-evaluate the 2014 existing condition in the corridor and the 2009 projections. This effort included additional travel demand modeling including modeling of the alternatives evaluated in the 2009 report. As a result of the supplemental effort a preferred alternative has been identified to advance into project development in the form of preliminary engineering and environmental analysis/permitting

The proposed Preferred Alternative is described as four (4) lanes within the existing footprint with two lanes providing priority to High Occupancy Vehicles (HOV), including transit. A typical cross-section of this configuration is provided below:



The supplement to the 2009 plan is included in this memorandum as "Attachment B."

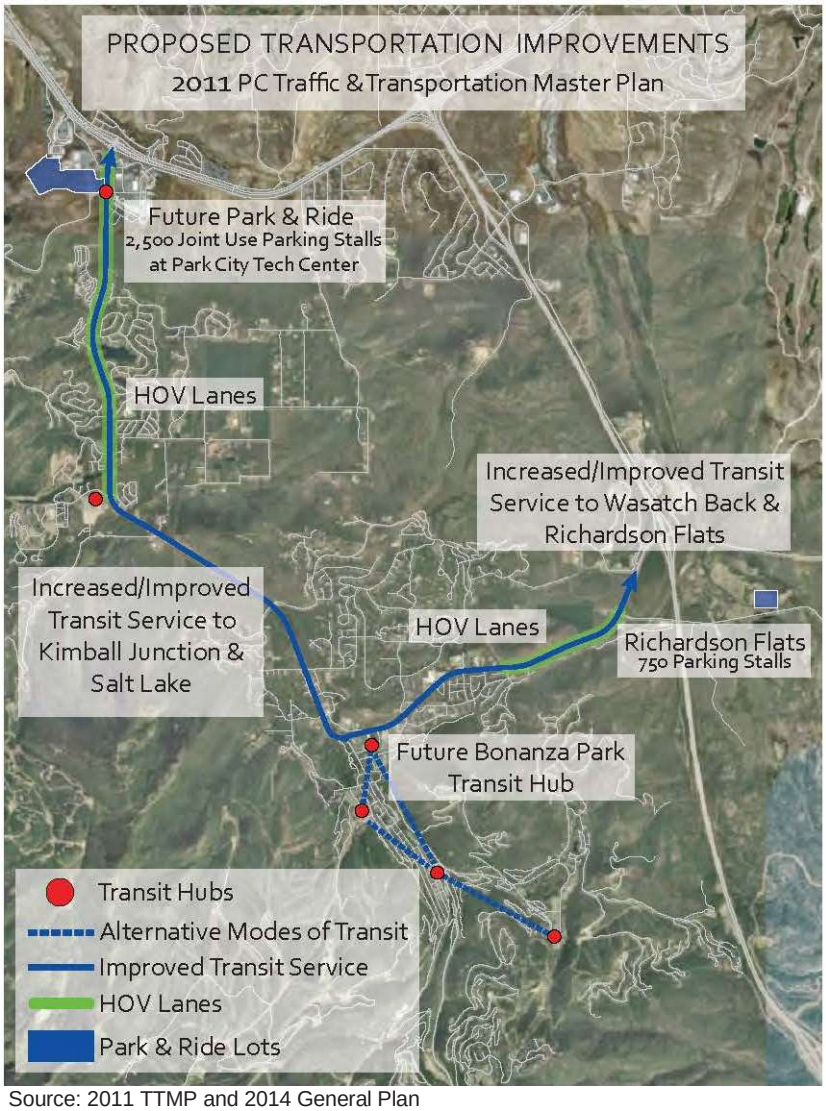
Implementation

Due to the fact SR 248 is part of the State Highway system, planning, design, and construction of any improvements on SR 248 requires oversight and approval from the Utah Department of Transportation. As such, Transportation Planning staff submitted the 2009 report and supplement to the Region 2 Traffic Operations Engineer for review and concurrence on the findings and associated recommendation. Transportation Planning staff has since received concurrence to advance the project into Project Development which Park City will take the lead. Completion of final design is tentatively scheduled for spring 2018 with the first phase of construction anticipated to occur in summer/fall 2018. As individual development proposals come forward it is recommended each project be evaluated as to how the proposed projects may or may not facilitate implementation of this plan.

Relationship to General Plan

The SR 248 Project is with goals and objectives of the 2014 General Plan as well also the adopted 2011 TTMP and the 2011 Short Range Transit Plan. This plan serves as an implementation plan to achieve the boarder goals and objectives of the aforementioned plans.

Figure 1



Source: 2011 TTMP and 2014 General Plan

Bonanza Park Transportation and Parking Siting Plan

Overview:

When Council elevated transportation as a "Critical Priority" an element of Transportation's "Focus Areas" was the completion of a parking siting and transportation study for the Bonanza Park neighborhood, Lower Park Avenue neighborhood, and the Park City Mountain Resort.

The Bonanza Parking Siting and Transportation Plan (Plan) was scoped to analyze transportation-parking options for the neighborhoods and resort seeking the following objectives:

- Provide for resort visitor parking in a location served with adequate auto infrastructure to efficiently and effectively serve peak season auto demand;
- Provide for convenient non-automotive transportation links (transit, pedestrian bicycle) between Bonanza Park, Lower Park Avenue, Park City Mountain Resort and Historic Main Street;
- Explore various transit modes (aerial, rail, rubber tired) to determine most attractive, efficient and effective mode to serve City needs in the short, mid and long range time horizons;
- Enhance remote parking to serve special event and Main Street peak period parking needs;
- Facilitate enhanced economic development in Bonanza Park and Park City Mountain Resort;
- Develop a transportation-parking siting and feasibility plan that includes Engineer's estimate of probable construction and Operations and Maintenance cost over a 15 year period.

The Executive Summary of the Bonanza Park Parking and Transportation Plan will be provided prior to the June 22, 2016 meeting.

Implementation:

The Bonanza Park Plan is currently in its final form and will be presented to Council in the coming weeks for consideration and adoption. Following adoption Transportation Planning, Planning, Engineering, Sustainability, and Public Works/Transit will use this document as to identify implementation opportunities consistent with the recommendations with this plan. It is also recommended the Planning Department evaluate individual development proposals for consistency with the Bonanza Park Plan following adoption of the plan by Council.

Table 1

PROJECT TYPE	PROJECT
2016 TO 2019	
Bonanza Park Improvements	Bonanza Park and Ride with Residential/Mixed-Use Wrap
Mixed-Use/Density	PCMR Base Development and Transit Improvements
Multimodal	Empire/Deer Valley/Park Intersection Improvements
Multimodal	PCMR-Bonanza Park Connection Complete Streets Improvements
Multimodal	Park Avenue Complete Streets Improvements
Multimodal	Bonanza/Kearns Intersection Treatment
Programmatic	Citywide Parking Management and Pricing
Programmatic	Citywide TDM Program
Programmatic	Coordinated Airport Connection
Transit Priority	SR-248 HOV Lanes
Transit Priority	Deer Valley Drive Transit Lane

2020 to 2024	
Aerial Connection	Aerial Connection: Phase 1
Bonanza Park Improvements	Bonanza Park East-West Complete Street
Multimodal	Kearns/Park Intersection Improvements
Multimodal	Bike/Pedestrian Path, PCMR to City Park
Transit Priority	Snow Creek Drive Transit Optimization
Transit Priority	PCMR-Bonanza Park Connection Transit Improvements
Transit Priority	SR-224 Transit-Only Lanes
2025 to 2029	
Bonanza Park Improvements	Bonanza Park North-South Transit-Only Roadway: Phase 1
Mixed-Use/Density	Bonanza Park Mixed-Use Development
Transit Priority	Union Pacific Railroad Corridor Transit-Only Roadway
2030-2040	
Aerial Connection	Aerial Connection: Phase 2
Bonanza Park Improvements	Bonanza Park North-South Transit-Only Roadway: Phase 2
Bonanza Park Improvements	Bonanza Park North-South Transit-Only Roadway: Phase 3

Relationship to General Plan

Recommendations within the Bonanza Park are consistent with the General Plan, specifically the "Small Town" goals and objectives as wells the Bonanza Park "Neighborhood" element. This plan serves as an implementation plan to achieve the boarder goals and objectives of the General Plan. It should be noted that the projects recommended in the plan are conceptual and will require additional planning and engineering prior to project approval and implementation.

Transportation Demand Management Plan

Overview:

Similar to the planning efforts discussed above, development of a Transportation Demand Management Plan was also identified in Transportation's Five Year Plan. This intent of this effort is to research and develop a TDM plan to reduce Vehicle Miles Travelled (VMT) and related traffic impacts of Single Occupant Vehicles (SOV"s) during peak day and peak hours on SR-224 & SR-248. This reduction will be accomplished through a focused TDM Program that is targeted at those groups who show the highest propensity to make travel choices other than the Single Occupant Vehicle. TDM have been highly successful in other resort communities such as Aspen, Whistler, and Lake Tahoe where a similar planning philosophy is embraced that places an emphasis on maximizing the efficiency of the transportation system through increased transit and shifting the demand on the system from peak to non-peak times as opposed to traditional capacity increasing projects such as road widening.

The Executive Summary of the TDM Plan is included in this memorandum as "Attachment C."

Implementation

The TDM plan is currently in the final form and will be presented to Council in the coming weeks for consideration and adoption. Following adoption of the plan, Transportation Planning staff will work internally and externally to implement TDM specific strategies and programs focused on key travel markets identified as part of the study which are residents, part-time residents, visitors/tourist, commuters, and employees. Specific strategies and programs were developed based on a thorough analysis of the 224 and SR248 corridors and related travel patterns, travel

markets, and origins and destinations. Transportation Planning staff also intends to work with Planning staff to evaluate individual projects as part of the permitting process with the intent of requiring TDM plans at the project level. Lastly, a TDM tool has also been developed to evaluate by calculating the effectiveness of TDM measures in reducing daily vehicle trips ends and associated VMT.

Relationship to General Plan

Implementation of TDM strategies and programs is consistent with the 2011 TTMP and the 2014 General Plan, specifically “City Implementation Strategy 3.14” within the “Small Town” element of the General Plan. This plan serves as an implementation plan to achieve the boarder goals and objectives of the General Plan as well as those contained in the 2011 TTMP.

Attachments

Attachment A – General Plan – “Small Town – Goal 3”
Attachment B – 2016 “SR 248 Corridor Plan Supplement”
Attachment C – Transportation Demand Management Plan Executive Summary

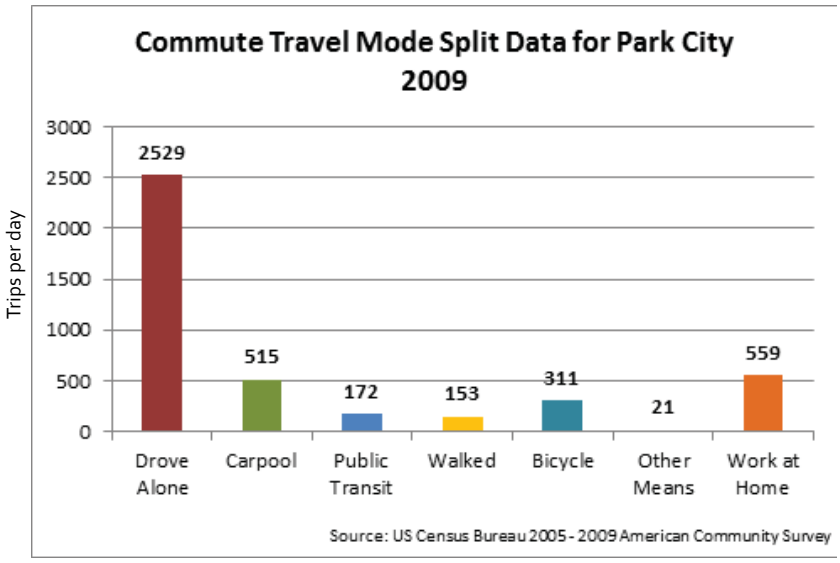
ATTACHMENT A

Goal 3

Park City will encourage alternative modes of transportation on a regional and local scale to maintain our small town character.

Park City's multi-modal transportation system includes diverse routes and means to where our guests stay, shop, and recreate and our residents live, work, and spend their leisure time. The system plays an integral role in shaping the overall structure, form, and function of the City. As the Wasatch Back areas continue to evolve, the transportation system must be able to move people and goods throughout Park City and the region efficiently and effectively.

While the single-occupancy vehicle is the most prevalent form of transportation in and around Park City, it is the least efficient in terms of carbon output per passenger. This mode of transportation has many negative consequences, including traffic congestion, air pollution, and the significant influence on climate change. Land use and transportation decisions should be made with the understanding of how a decision will impact the common goal of a more sustainable form of transportation while protecting the *Small Town* aesthetic.



A major focus of transportation decisions is the end user. There are competing end-user interests in Park City between visitors and local residents. In order to effectuate a paradigm shift in preference of public transportation over the single-occupancy vehicle, the public transportation system must function to attract both the visitor and the local alike.

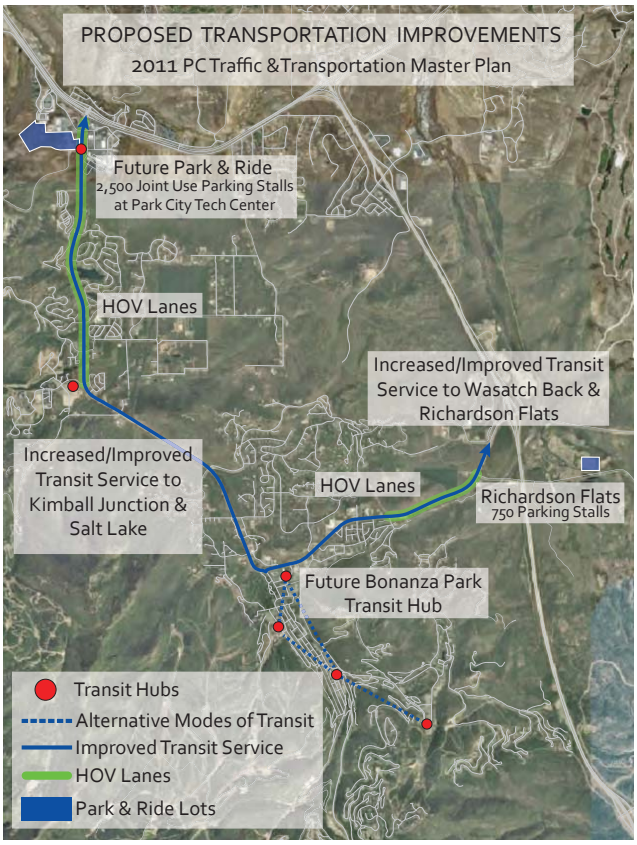
Objectives

3A Streets, pedestrian paths and bike paths should contribute to a system of fully connected and interesting routes to all destinations. Their design should encourage pedestrian and bicycle use by being small and spatially defined by buildings, trees, signs, and lighting; and by discouraging high-speed traffic.

3B Prioritize efficient public transportation over widening of roads to maintain the *Small Town* experience of narrow roads, modest traffic, and Complete Streets.

3C Public transportation routes should be designed to increase efficiency of passenger trips and capture increased ridership of visitors and locals.

PARK CITY MUST CONTINUALLY LOOK AT OPPORTUNITIES FOR ALTERNATIVE MODES OF TRANSPORTATION



The concept plan on the following pages illustrates and details alternative mode concepts in addition to these vehicle-based upgrades.

Community Planning Strategies

3.1 Require development and redevelopment to increase the potential for multi-modal transportation options including: public transit, biking, and walking. Require developers to document how a development proposal is encouraging walking, biking, and public transportation over the single-occupancy vehicle.

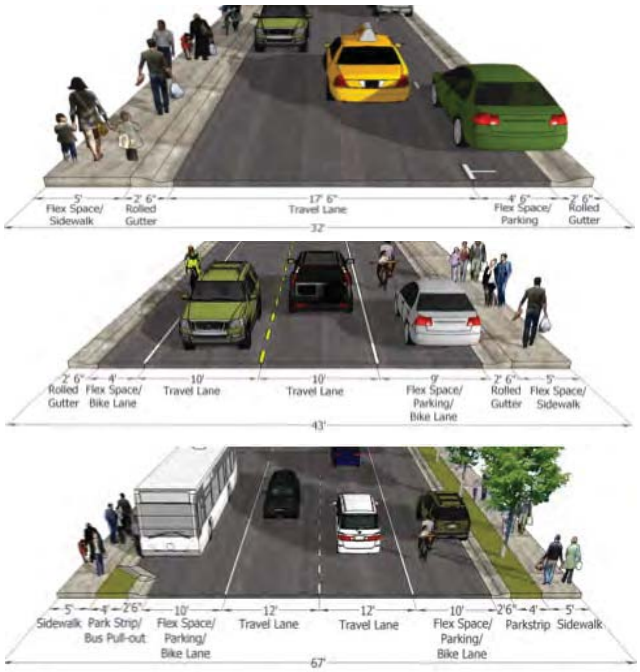
3.2 Revise parking requirements to incentivize multi-modal transportation, high efficiency vehicles, and shared parking areas. Require secure bicycle parking options.

3.3 Create a requirement within new development and redevelopment for connectivity and linkage within the City road and trail networks. This requirement must be consistent with Utah impact fee statutes factoring in adjustments to capitol facilities plan and funding mechanisms

3.4 Create safe bike/pedestrian pathways between all public spaces within the City limits.

3.5 Identify needed connectivity of roads, sidewalks, and trail systems to decrease vehicle miles traveled and increase direct pedestrian/bicycle routes to neighborhood amenities, as identified in individual neighborhood plans.

3.6 Continue to work with the Mountain Accord to explore opportunities for light rail or other alternative modes of transportation to connect Park City to Salt Lake City; specifically important is the direct connection to the SLC International Airport to provide visitors easy access to Park City.



To accommodate multi-modal transportation alternatives within rights-of-way and decrease pressures to widen roads, the 2011 Park City Traffic and Transportation Master Plan adopted complete street strategies for future redevelopment of roads. Complete Streets plans for safety and efficiency of pedestrians, bikes, cars, and mass transit circulation.

City Implementation Strategies

3.7 Prioritize walkability improvement in identified "hot spots" (areas with existing trip demands located close to one another) in the walkability index.

3.8 Design redevelopment and transportation infrastructure to allow for future upgrades to mass transportation systems, including light rail, bus rapid transit, and gondolas.

3.9 Increase regional mass transit ridership through shared use of transit centers with private transportation carriers, as appropriate.

3.10 Locate Park-and-Rides, transfer stations, and transit centers in areas that will increase public transit ridership and carpooling decreasing the amount of single passenger automobiles commuting to and from Park City.

3.11 Improve the access to, efficiency, and experience of public transit. Experience includes shelter from the elements and feeling safe while waiting, free access to internet while traveling, real time schedules/ timetables, and comfortable seating. Explore the opportunity to use smaller buses (or shuttles) during offseason and/or for narrow ROW routes or routes with reduced, but constant, demand.

3.12 Implement the Complete Streets strategy of the Traffic & Transportation Master Plan and walkability study. Update and improve the parking enforcement policies in Old Town specifically, and other areas.

3.13 Seek alternatives to widening of existing streets and highways.

3.14 Adopt travel demand management (TDM) programs to encourage commuter trip reduction programs, including: prioritized employment hub routes, commuter incentives, and recognition of local businesses that incentivized employee use of alternative modes of transportation.

3.15 Implement neighborhood traffic calming measures.

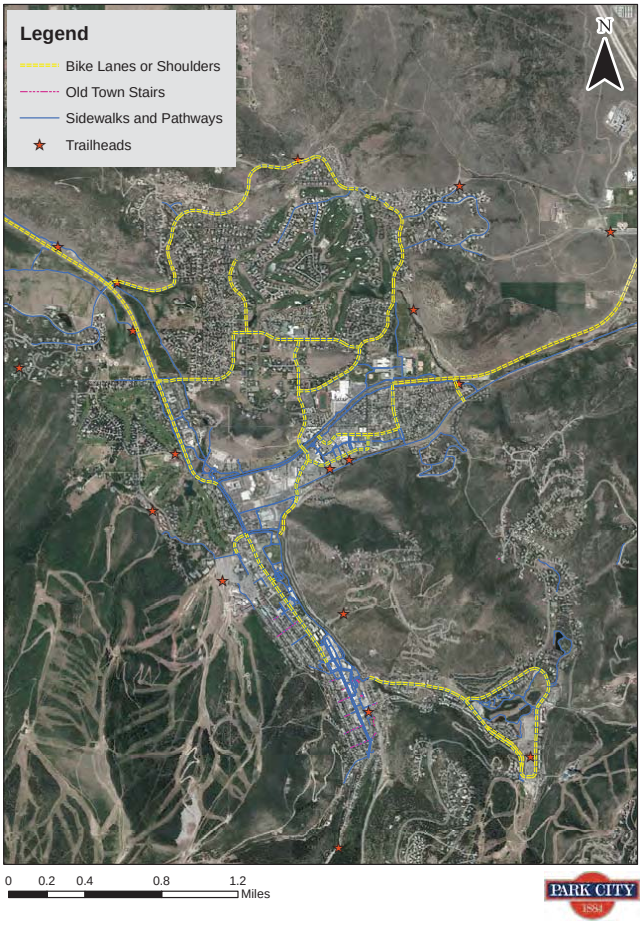
3.16 Create a bilingual multi-modal access guide, which includes maps, schedules, contact numbers, and other information noting how to reach a particular destination by public transit.

3.17 Incentivize use of public transportation from the airport to connect with the Park City public transportation system.

3.18 Conduct research on approved projects within Park City that received a reduction in parking. Reassess parking policy on decreased parking based on the findings of the research.

3.19 Look at opportunities to create increased bus/shuttle services for visitors arriving at the SLC Airport to visit Park City. Explore opportunities to partner with the SLC Airport, Park City Chamber of Commerce and bus/shuttle companies to create a Park City lounge for visitors to utilize as a waiting area for this service.

Walking and Biking Infrastructure

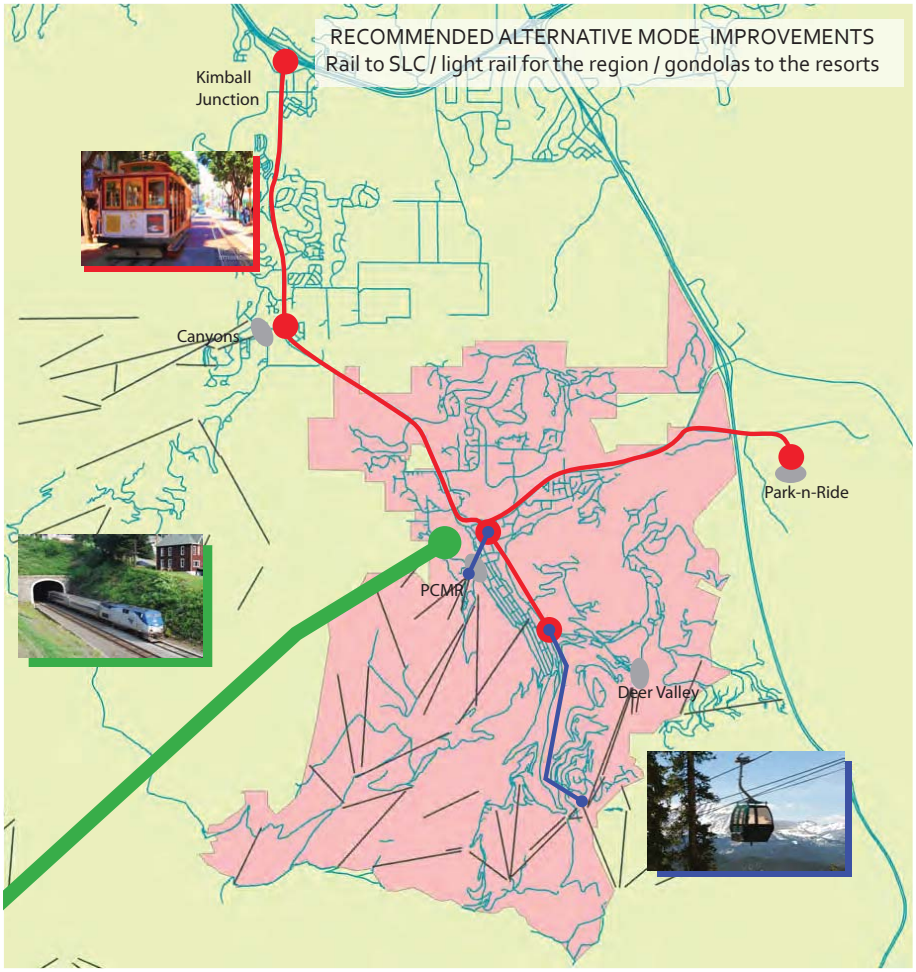


Park City has committed significant resources into walking and cycling infrastructure over the last two decades. This map illustrates the City's biking lanes in yellow; sidewalks and pathways in blue, new stairs in Old Town are noted in red, and red stars indicate trailheads.

The City will continue to expand upon these existing pieces of infrastructure and create improved pedestrian/bike connectivity. The 2007 Walkability Plan recommends continued expansion of this system. This Plan also led to a $15 million bond for these improvements; indicative of the community's commitment to the ongoing improvements to this infrastructure.

Alternative modes of transportation will allow Park City to become more sustainable in terms of resource expenditures while maintaining the convenient movement of tourists throughout the community - an essential element to ensure our success as a community that hosts more than 600,000 visitors a year. Both visitors and residents alike have noted in recent surveys that increased traffic would be the #1 reason that people would stop visiting or move away from Park City.

This map shows a truly connected transportation system that represents a possible solution to vehicular traffic as we look 20 years into the future. The vision illustrated here includes a streetcar (red line) from Kimball Junction to Bonanza Park, and ultimately the Main Street transit center. Phase II of such plan might include a connection out to the City's park-n-ride facility to address significant increases in traffic that will result from the build-out of the Jordanelle development area. The Plan includes possible gondola connections ((blue line) from Bonanza Park to PCMR and/or Main Street to Deer Valley resort. Finally, the proposed Interconnect is illustrated in green and simply represents a conceptual connection to Salt Lake City via rail in the future.



ATTACHMENT B

FEHR PEERS

SR-248 Corridor Plan Update

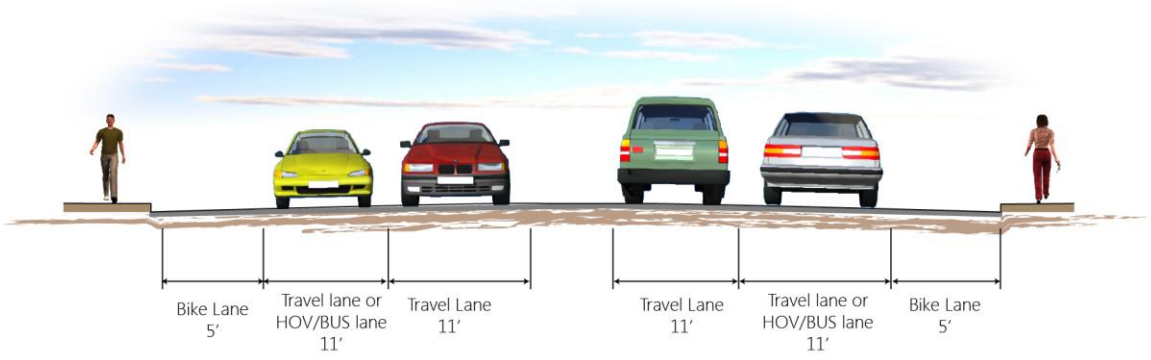
TECHNICAL MEMORANDUM

To:	Brooks Robinson, Park City	
	Alfred Knotts, Park City	
	Patrick Cowley, P.E. UDOT	
Date:	November 19, 2015	
From:	Lynn Jacobs, P.E. PTOE, Fehr & Peers	
	Jon Nepstad, AICP, Fehr & Peers	
Subject:	**SR-248 Analysis**	UT15-1059

Executive Summary

A study was completed in 2009 by H.W. Lochner, Inc. on SR-248 in which several alternatives were developed and evaluated. The study identifies Alternative 3 as the preferred alternative which proposes widening SR-248 to a 4-lane cross-section from Sidewinder Drive to Richardson Flats within the existing footprint (as shown below).

Typical 4-lane cross-section



The added lane would be a HOV/Bus only lane during peak hours of the day from Wyatt Earp Way to Richardson Flats. These peak hours would be defined by Park City and UDOT staff, but would likely be from 7:00 – 9:00 AM and from 4:00 -6:00 PM. Fehr & Peers has revisited the findings of that study with updated traffic count information and micro-simulation analysis to ensure the viability of this and the other concepts that were evaluated in the 2009 study (as shown in the body of this report).

The analysis presented within this document is based on traditional traffic engineering principles. Many of the metrics chosen for evaluation (delay, Level of Service, travel time) are focused on quantifying the performance of the roadway based on the typical Single Occupancy Vehicle (SOV) user experience. Park City has stated goals within their 2011 Traffic and Transportation Master Plan to discourage additional SOV trips and encourage High-Occupancy Vehicle (HOV) trips and trips using transit, walking and/or biking.

This updated existing conditions analysis, however, found that the overall corridor is generally operating acceptably (Level Of Service (LOS) D or better at most locations) during seasonal peak conditions (March, 2015). There is a traffic bottleneck at the Bonanza Road intersection. Specifically, the northbound right turn from Bonanza Road onto SR-248 is experiencing high levels of delay, resulting in overall intersection LOS E/F during PM peak hours. A potential capacity improvement at this location would be to eliminate an eastbound through lane at the intersection and convert the northbound right turn into a channelized free-right, or to acquire ROW on the SE corner of the intersection to accommodate a receiving lane for the new NB free right turn, resulting in a section of SR248 that has three EB travel lanes. This concepts have not been further evaluated as part of this study due to study constraints (scope,budget). Fehr & Peers recommends further consideration and evaluation of this concept as preliminary analysis indicates that it could provide minor operational benefits at the intersection and hence, the corridor. As the rest of the corridor was operating acceptably under existing conditions, the preferred alternative did not show any significant traffic benefits under existing traffic volumes.

The updated future (2040) conditions analysis found that traffic will be constrained getting onto SR-248 at the intersections at SR-248/SR-224, SR-248/Bonanza and SR-248/ US-40. This produces a metering effect on traffic using SR-248. The result of this metering effect is that traffic is unable to access the portion of SR-248 where the proposed widening is located. This in turn renders the proposed widening ineffective from the traditional SOV user experience perspective. However, if capacity improvements are made at the SR-248/SR-224 and SR-248/US-40 intersections, the 2040 demand volumes on the corridor would justify the widening. The intersection at SR-248/SR-224 was previously studied and a multi-lane roundabout was recommended. These projects could be pursued in conjunction or separately.

The proposed widening did not show a substantial auto travel time or LOS benefit under existing conditions or future conditions. The future unconstrained demand is large enough to justify this widening, but only if the external constraints or meters (SR-224, Bonanza, US-40) are improved such that traffic is able to follow less constrained and access SR-248. Should the widening occur in conjunction with previously mentioned improvements on Bonanza, SR 224/SR 248, and US-40, the project would provide a a number of public benefits including:

- If the new lane is a HOV/Bus facility, it would enhance bus service visibility and reliability to the park-and-ride lot at Richardson Flats, encouraging a mode shift from SOV automobile traffic. This in turn has the potential to reduce the demand at the congested intersections at SR-224/SR-248, Bonanza Drive/ SR-248 and US-40/SR-248. This reduction in demand could delay the need to make capacity improvements at these locations.
- When the external constraints at SR-224, Bonanza, and/or US 40 are removed, the projected demand will need the extra lane in this area to operate efficiently.

- Construction of these additional lanes as HOV/Bus facility is consistent with local plans and policies that discourage road widening or the addition of significant increases in lane mileage for Single Occupancy Vehicles (SOV).
- Construction of these lanes will also provide a consistent cross-section (in terms of number of travel lanes) from US-40 to SR-248. This is a desirable outcome as it reduces conflicts where the current lane drops exist.

Therefore, Fehr & Peers recommends that the widening be completed and that the following other improvements are made before or within 3-5 years after the widening:

- The intersection at SR-224/SR-248 is improved (potentially by constructing the multi-lane roundabout as previously recommended),
- The intersection at Bonanza/SR-248 is improved (potentially by adding a free northbound right turn lane),
- The interchange at US-40/SR-248 is improved,
- Highway access and Transit frequency to the park-and-ride lot on Richardson's Flat is improved.

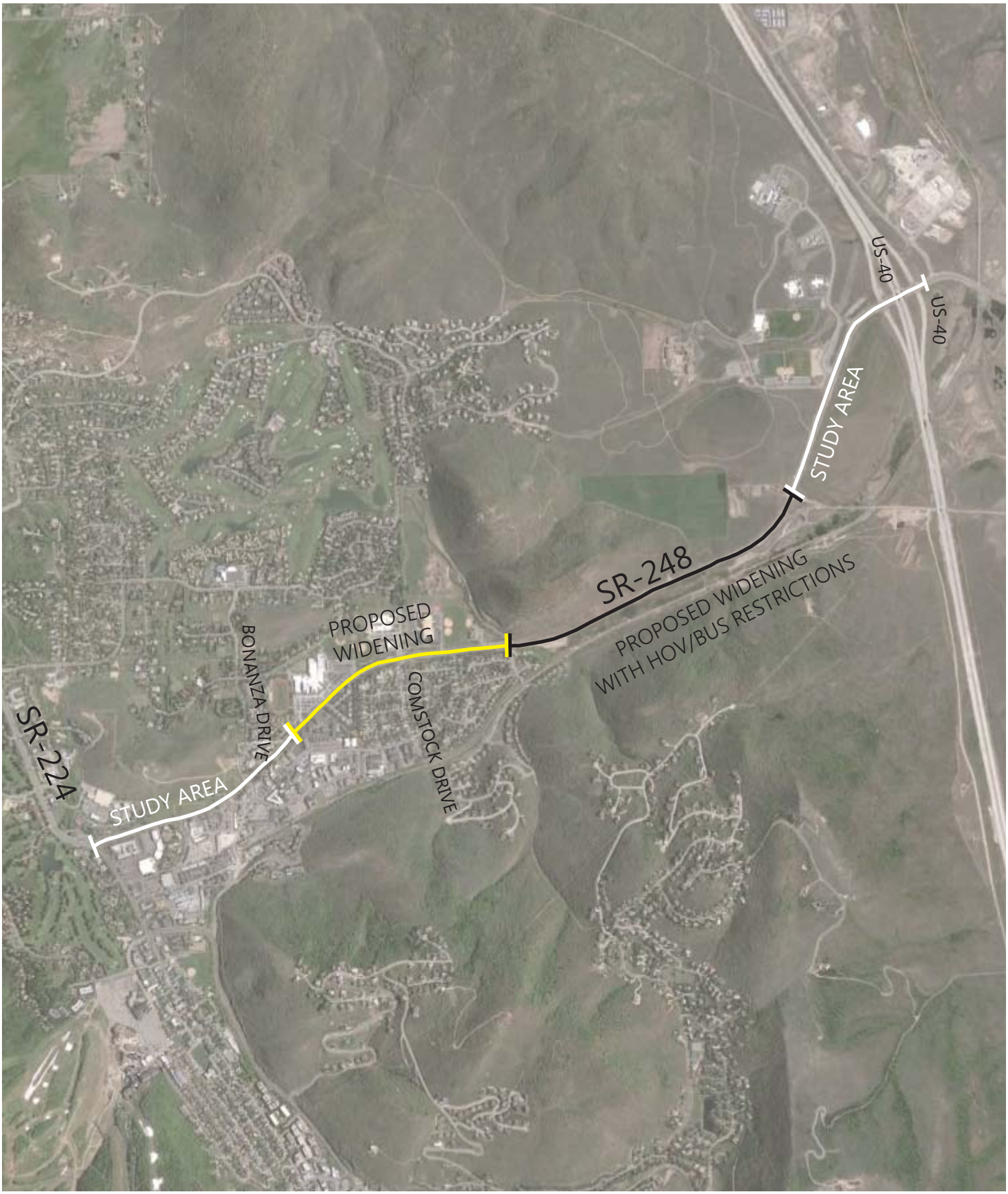
Background

The study area consists of SR-248 from the intersection at SR-224 to the interchange at US-40 as shown in Figure 1. SR-248 currently serves between 15,000 and 18,000 vehicle trips per day (*Traffic on Utah Highways*, UDOT 2014) and serves as one of the primary access points to downtown Park City for traffic from US-40 and beyond. There is a substantial directional split to traffic during the peak periods. During the AM peak the directional split is approximately 70% WB / 30% EB. This split reverses in the PM peak period. Several Park City schools and associated administrative and sports facilities are located on the north side of SR-248 between Bonanza Drive and Comstock Drive. There is consistent traffic congestion in this area during school loading and un-loading periods. The the City and Park City School District are currently working cooperatively to develop potential modifications to accesses as part of a separate effort that could help to reduce this congestion and improve safety. These improvements were not analyzed as part of this study, however any reduction or consolidation of access on SR-248 would be beneficial to overall mobility along the corridor.

The SR-248 corridor has been previously studied in 2007 and again in 2009. The 2009 study identified a number of potential alternatives to meet the transportation needs of this corridor including:

1. Full widening of SR-248 to have a consistent two travel lanes in each direction and a center turn lane from SR-224 to US-40.
2. Constructing a reversible lane from Wyatt Earp Way to Richardson Flats. The reversible lane would fit within the existing right-of-way (ROW), but would require the installation of traffic control gantries.
3. Either of the above two options with the extra lane functioning as a HOV/Bus lane during peak periods.

The preferred alternative identified in the study was to complete the full widening with the HOV/Bus restrictions in place.



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Not to Scale

FEHR & PEERS

STUDY AREA

FIGURE 1

The purpose of this current effort is to revisit the analysis that was previously performed to confirm that the preferred alternative is still a viable option given any changes in traffic volumes since the previous studies were completed.

Existing Conditions Analysis

To update the traffic operations analysis, new turning movement counts (as shown on figure 2) were collected on March 18, 2015 at the following locations:

- SR-248 / SR-224
- SR-248 / Bonanza Drive
- SR-248 / Comstock
- SR-248 / US-40

These four intersections represent the study intersections for this analysis. The intersection of Round Valley Drive is represented in the model to reproduce platooning on SR-248. The volumes in the model at that location are based on previous data collection and modeling efforts that have been completed by Fehr & Peers. No metrics will be reported for that intersection.

An updated traffic simulation model was prepared using the micro-simulation software VISSIM. The model was calibrated and validated to the observed volumes, queue lengths and travel time from SR-224 to US-40.

Upon completion of the updated existing conditions model, the four build alternatives (Full widen, reversible, with and without HOV) were then analyzed for the AM and PM peak hours under 2015 traffic volume conditions. The updated 2015 results are shown in Tables 1 through 4 below.

Table 1. 2015 AM Peak Hour Delay (seconds) and Level of Service (LOS)

	Intersection	Existing		Reversible		Reversible HOV		Full Widen		Full Widen HOV	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	SR-224/SR-248	11	B	11	B	10	B	10	B	10	B
2	Monitor Drive-Bonanza Drive/SR-248	28	C	28	C	29	C	29	C	25	C
3	Comstock Drive/SR-248	30	C	30	C	17	B	16	B	17	B
4	US-40 SB Ramp/SR-248	15	B	15	B	16	B	16	B	16	B
5	US-40 NB Ramp/SR-248	20	C	20	C	19	c	19	C	19	C

Table 4. 2015 AM Peak Hour Travel Time (minutes)

	Travel Time (min)	Existing	Reversible	Reversible HOV	Full Widen	Full Widen HOV
1	EB SR-248 (US 40 to SR-224)	5	5	5	5	5
2	WB SR-248 (SR-224 to US 40)	6	6	6	6	6

Not to Scale

FEHR & PEERS

EXISTING BACKGROUND CONDITIONS 2015

FIGURE 2

Table 3. 2015 PM Peak Hour Delay (seconds) and LOS

	Intersection	Existing		Reversible		Reversible HOV		Full Widen		Full Widen HOV	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	SR-224/SR-248	40	D	37	D	38	D	38	D	42	D
2	Monitor Drive-Bonanza Drive/SR-248	77	E/F	80+	E/F	80+	E/F	80+	E/F	80+	E/F
3	Comstock Drive/SR-248	13	B	11	B	11	B	10	B	10	B
4	US-40 SB Ramp/SR-248	37	D	37	D	41	D	32	C	39	D
5	US-40 NB Ramp/SR-248	13	B	13	B	12	B	13	B	13	B

Table 4. 2015 PM Peak Hour Travel Time (minutes)

	Travel Time (min)	Existing	Reversible	Reversible HOV	Full Widen	Full Widen HOV
1	EB SR-248 (US 40 to SR-224)	6	6	6	5	6
2	WB SR-248 (SR-224 to US 40)	6	6	6	6	6

As shown in tables 1 through 4, the existing traffic conditions on SR-248 operate generally within an acceptable range of delay/LOS (LOS D or better) with the exception of the SR-248/Bonanza Drive intersection during the PM peak hour. At this location the volume of northbound to eastbound right turning vehicles is high, as well as the eastbound through movement on SR-248 (both movements headed from Park City to US-40). The volumes for these two movements are the main contributing factors to the LOS E/F during this peak hour. The threshold between LOS E and F is defined as a delay of greater than 80 seconds, since each scenario produced results close to 80 seconds of delay, they are reported as being right on the LOS E/F threshold. Traffic conditions at the LOS E/F threshold tend to be very volatile, so differences in delay at this location under the various scenarios is attributable to the random nature of the simulation model.

An intersection modification has been proposed for the intersection at SR-248/Bonanza to mitigate the LOS E/F conditions. The modification would be to:

- Convert the northbound right turn to a free right, making one of the existing eastbound exit lanes from Bonanza the receiving lane for the free right.
- Dropping an eastbound through lane to free up an exit lane as described above.

A cursory analysis of the turning movement volumes at this location indicated that this could result in an overall benefit to the operations at Bonanza/SR-248 and to the SR-248 corridor as a whole since this movement acts as a chokepoint for vehicles accessing SR-248. Further analysis is recommended to evaluate the concept, as the cursory analysis conducted as part of this effort is of inadequate detail for decision making.

The build scenarios generally don't show significant difference from the existing conditions scenario for 2015 conditions. This is due to lack of existing congestion in the area that would be widened.

2040 Conditions Analysis

Upon completion of the updated existing conditions model, the four build alternatives (Full widen, reversible, with and without HOV) were then analyzed for the AM and PM peak hours under 2040 traffic volume conditions (shown on Figure 3).

Proposed growth rates for the 2040 analysis were developed based on the WFRC/MAG travel demand model prepared for the Mountain Accord project and consist of the following:

- 2.8% annual growth for SR-248 west of Wyatt Earp and for N/S on SR-224
- 4.0% annual growth for SR-248 east of Wyatt Earp and for N/S on US-40
- 0.5% annual growth for all other side street approaches to SR-248

The 2040 results are shown in Tables 5 through 8 below.

Table 5. 2040 AM Peak Hour Delay (seconds) and Level of Service (LOS)

		Future		Reversible		Reversible HOV		Full Widen		Full Widen HOV	
	Intersection	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	SR-224/SR-248	79	E/F	80+	E/F	80	E/F	80+	E/F	76	E/F
2	Monitor Drive-Bonanza Drive/SR-248	25	C	28	C	29	C	28	C	26	C
3	Comstock Drive/SR-248	28	C	18	B	17	B	19	B	17	B
4	US-40 SB Ramp/SR-248	100+	F	100+	F	100+	F	98	F	100+	F
5	US-40 NB Ramp/SR-248	100+	F	100+	F	100+	F	100+	F	100+	F

Table 6. 2040 AM Peak Hour Travel Time (minutes)

	Travel Time (min)	Future	Reversible	Reversible HOV	Full Widen	Full Widen HOV
1	EB SR-248 (US 40 to SR-224)	5	5	5	5	5
2	WB SR-248 (SR-224 to US 40)	6	6	6	6	6

Table 7. 2040 PM Peak Hour Delay (seconds) and LOS

		Future		Reversible		Reversible HOV		Full Widen		Full Widen HOV	
	Intersection	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	SR-224/SR-248	120+	F	120+	F	120+	F	120+	F	120+	F
2	Monitor Drive-Bonanza Drive/SR-248	80+	F	80+	F	80+	F	80+	F	80+	F
3	Comstock Drive/SR-248	14	B	11	B	11	B	11	B	10	B
4	US-40 SB Ramp/SR-248	80+	F	80+	F	80+	F	80+	F	80+	F
5	US-40 NB Ramp/SR-248	64	E	68	E	69	E	65	E	67	E

Not to Scale

FEHR & PEERS

FUTURE CONDITIONS 2040

FIGURE 3

Table 8. 2040 PM Peak Hour Travel Time (minutes)

	Travel Time (min)	Future	Reversible	Reversible HOV	Full Widen	Full Widen HOV
1	EB SR-248 (US 40 to SR-224)	6	6	6	6	6
2	WB SR-248 (SR-224 to US 40)	7	7	7	7	7

As shown in tables 5 through 8 the future (2040) traffic conditions on SR-248 operate generally over capacity (LOS E or worse) with the exceptions of the SR-248/Bonanza Drive intersection during the AM peak hour and the SR-248 Comstock Drive intersection during both AM and PM peak hours. The reason for this result is that volume demands are bottlenecked at the SR-224/SR-248 and US-40/SR-248 intersections. The turning movements originating from SR-224 and US-40 keep most of the traffic demand from flowing into SR-248. Once operations at these external nodes break down, traffic entering SR-248 is metered, and only 60% of the 2040 calculated demand is able to reach the Bonanza/SR-248 and Comstock/SR-248 intersections. UDOT currently does not have any plans or projects that address the conjection at US-40/SR-248.

There is no significant difference between the no-build and the build scenarios. This is largely due to the same phenomena: traffic is externally constrained. Congestion within the model is focused around the external nodes and is unable to build in the center of the corridor, where the proposed projects are located. No significant traffic benefit is expected as a result of constructing any of these options without improving the capacity of the system entering SR-248.

If capacity improvements were made at the SR-224/SR-248, Bonanza/SR-248 and US-40/SR-248 intersections, delay at Comstock and Bonanza would be expected to increase. It would also be expected that congestion within the project area would also increase. The unconstrained 2040 demand volumes are projected to be high enough to justify the widening, if the external constraints were improved. Under those conditions, the project scenarios would likely have a travel time benefit over the no-project scenarios.

For the SR-224/SR-248 intersection, a previous study recommended construction of a multi-lane roundabout. This capacity improvement could relieve this bottleneck, and reduce metering onto SR-248.

For the Bonanza/SR-248 intersection, adding a free-right turn either by eliminating an EB through lane or acquiring ROW on the SE corner of the intersection would help relieving this bottleneck, thereby reducing this metering effect onto SR-248. Further analysis of this concept is recommended.

For the US-40/SR-248 interchange, further analysis of interchange modifications is also recommended. Some preliminary ideas include modifying the interchange to a higher capacity configuration (SPUI, DDI, etc..) or to add a second SBR and/or a second EBL lane. These concepts have not been evaluated or programmed by UDOT.

Conclusions and Recommendations

The existing traffic conditions on SR-248 operate generally within an acceptable range of delay/LOS (LOS D or better) with the exception of the Bonanza Drive intersection during the PM peak hour. At this location the volume of northbound to eastbound right turning vehicles is high, as well as the eastbound through movement on SR-248 (both movements headed from Park City to US-40). The volumes for these two movements are the main contributing factors to the LOS E/F during this peak hour.

The future scenarios show a significant worsening compared to the existing conditions scenarios, especially at the SR-224/SR-248 and US-40/SR-248 intersections. Other locations within the model actually show improvement due to the metering effect of these intersections failing. If capacity improvements are made at these two locations, it would be anticipated that the delay at Comstock and Bonanza would increase, as well as congestion throughout the SR-248 corridor.

There are a number of reasons why the proposed project will provide public benefit including:

- If the new lane is a HOV/Bus facility, it would enhance bus service visibility and reliability to the park-and-ride lot at Richardson Flats, encouraging a mode shift from SOV trips. This in turn has the potential to reduce the demand at the congested intersections at SR-224/SR-248, Bonanza Drive/ SR-248 and US-40/SR-248. This reduction in demand could delay the need to make capacity improvements at these locations.
- When the external constraints at SR-224, Bonanza, and/or US 40 are removed, the projected demand will need the extra lane in this area to operate efficiently.
- Construction of these additional lanes as HOV/Bus facility is consistent with local plans and policies that discourage road widening or the addition of significant increases in lane mileage for Single Occupancy Vehicles (SOV).
- Construction of these lanes will also provide a consistent cross-section (in terms of number of travel lanes) from US-40 to SR-224. This is a desirable outcome as it reduces conflicts where the current lane drops exist.

Fehr & Peers recommends that the proposed widening be completed, and as part of that widening project, additional analysis is needed as follows:

1. Further evaluate the proposed intersection modification concept at Bonanza Drive,
2. Identify potential capacity improvements at the US-40/SR-248 and SR-224/SR-248 intersections,
3. Quantify the benefits of these alternatives if those capacity improvements were completed
4. Access removal or consolidation at the school would benefit overall mobility on SR-248, and should be evaluated further.

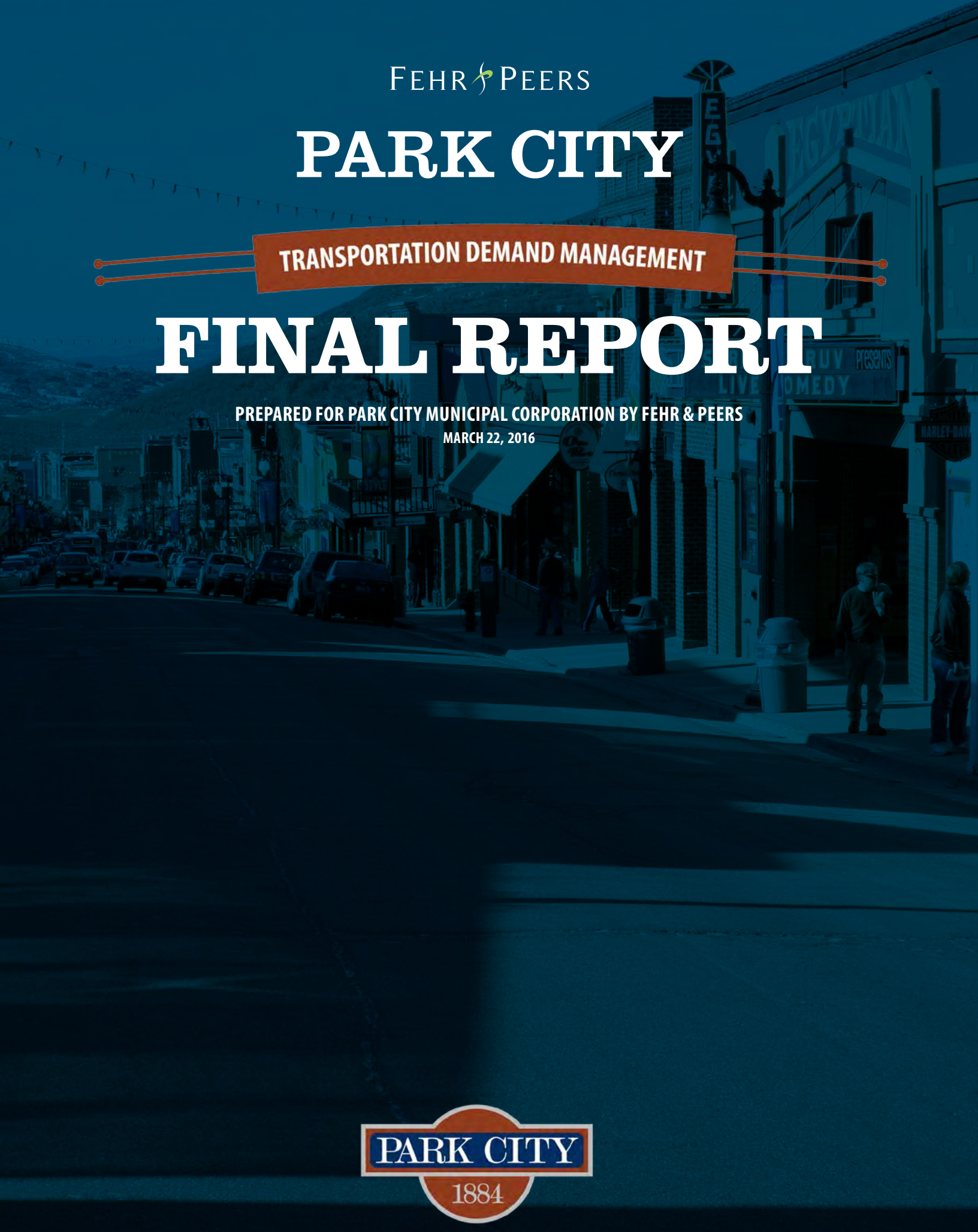
ATTACHMENT C

FEHR PEERS

PARK CITY

TRANSPORTATION DEMAND MANAGEMENT

FINAL REPORT



PREPARED FOR PARK CITY MUNICIPAL CORPORATION BY FEHR & PEERS

MARCH 22, 2016

PARK CITY 1884

EXECUTIVE SUMMARY

PROJECT PURPOSE

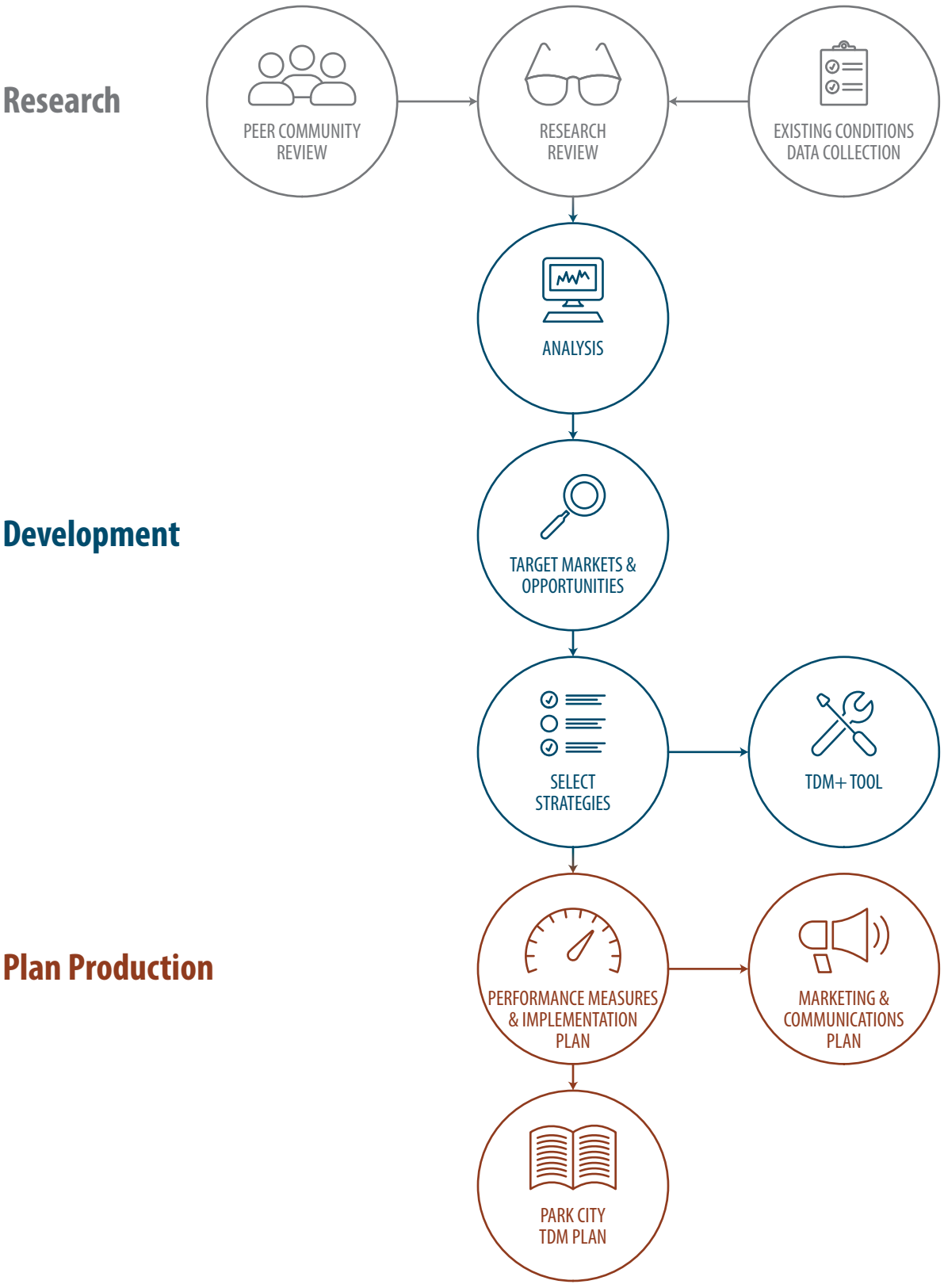
The Park City Transportation Demand Management project is focused on reducing vehicle miles traveled (VMT) and related traffic and environmental impacts of Single Occupant Vehicles (SOV) during peak days and peak hours. This reduction will be accomplished through a focused Transportation Demand Program that is targeted at those groups who show the highest propensity to make travel choices other than the SOV.

DOCUMENT PURPOSE

The purpose of this document is to summarize the existing transportation conditions in the Park City area, highlight peer community and national research on TDM strategies, and provide a shortlist of strategies, performance measures, and next steps to implement a TDM program for Park City. The following flow chart provides an overview of the plan development process.

Park City TDM Plan

PROJECT OVERVIEW & PROCESS



KEY FINDINGS

Peer Community & National Research

- Collaboration is key between public agencies and private employers
- The most successful programs provide a variety of TDM strategies and alternatives to driving alone
- The unique conditions in resort towns require that TDM program managers adapt typical TDM strategies to user needs
- Ongoing monitoring is essential to ensure that TDM programs respond to changing user needs over time

Target Audience Segments & Opportunities

- Five segment groups within the Park City area to focus TDM strategies on
  - Residents – Living in Park City
    - Primarily use their car to get around, but they are willing to use alternative modes of transportation such as transit or biking, as long as it is convenient and time effective.
  - Part–Time Residents – own a second home in Park City
    - While their car is their main mode of transportation, they are more likely to carpool then to drive alone and are willing to try transit and biking to get around.
  - Commuter – work in Park City but live outside of Park City
    - Like others in Park City, their car is their main mode of transportation and they typically drive alone. They are willing to try alternatives modes as long as they are convenient and time efficient, meaning they are more willing to carpool than to take transit.
  - Visitors / Tourists
    - Their car is their main mode of transportation to and from Park City, but they are likely to carpool to get in and out of town. Inside of town, they will walk or take transit to get around.
  - Employees
    - They prefer to have access to their car during the day, whether it is needed or not. Convenience is a motivating factor in their travel choices, however they are

willing to consider taking transit, biking, or carpooling, particularly if their employer offered an incentive to do so.

TDM STRATEGY SHORTLIST

Strategies were developed through review of academic and peer community research, review of existing conditions, and coordination with Park City staff. Strategies were also stratified to each target audience segment to demonstrate which strategies would be most effective for each group. These are described in the following pages.

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TDM STRATEGIES THAT WORK FOR

RESIDENTS

Overview

The transportation demand management (TDM) strategies at right introduce new travel options for full-time Park City residents. They respond to residents' needs and priorities as determined through market research. They offer a diverse set of options spanning land use, policy, and programs, and they look to optimize existing transportation infrastructure while nurturing a balanced, multimodal travel network.

While Park City residents primarily use their car to get around, they are willing to use alternative modes of transportation such as transit or biking, as long as it is convenient and time effective. Park City residents take pride in their community and enjoy the variety of activities that Park City has to offer. They are middle aged, social, engaged, and physically active.

Focus Areas

RIDESHARE · PARKING · BIKE · WALK/BIKE · TRANSIT · DEMAND MANAGEMENT · PROGRAMS · LAND USE

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	FOCUS AREA	RANGE OF REDUCTION IN VEHICLE MILES TRAVELED (VMT)	IMPLEMENTATION COSTS	
IMMEDIATE STRATEGIES				
Walking/Biking School Bus (APPLIES TO SCHOOL TRIPS ONLY)		0% 5% 10% 15% 20%	Varies	SALARY & BENEFITS OF HALF TIME STAFF COORDINATOR
School-Oriented Carpools (APPLIES TO SCHOOL TRIPS ONLY)		0% 5% 10% 15% 20%	$5,000 - $10,000 $24,000 - $48,000	STARTUP COSTS ANNUAL OPERATING COSTS
Increased Transit Frequency to Kimball Junction		0% 5% 10% 15% 20%	$1,200,000 $425,000	CAPITAL COSTS ANNUAL OPERATING COSTS
NEAR-TERM STRATEGIES				
Bike Repair Stands		0% 5% 10% 15% 20%	$800 - $1,500	PER STAND
Bike Share System USING E-BIKES		N/A	$1,500,000 - $2,500,000	CAPITAL & OPERATING COSTS
School Parking Management (APPLIES TO SCHOOL TRIPS ONLY)		0% 5% 10% 15% 20%	$8 - $13	PER PERSON
Tailored Information & Promotions (APPLIES TO WORK TRIPS ONLY)		0% 5% 10% 15% 20%	$8 - $13	PER PERSON
Carpool/Vanpool Parking		0% 5% 10% 15% 20%	$150 - $300	PER SPACE
Transit Jump Queue Lanes		0% 5% 10% 15% 20%	Varies	
Transit Vehicle Signal Preemption		0% 5% 10% 15% 20%	Varies	
LONG-TERM STRATEGIES				
TDM Requirements for New Developments or Redevelopment POLICY		0% 5% 10% 15% 20%	N/A	
Density Bonus for Parking Reduction POLICY		0% 5% 10% 15% 20%	N/A	
Parking Demand Management		0% 5% 10% 15% 20%	N/A	
ONGOING STRATEGIES				
Bike Parking at Developments & Transit Stops		0% 5% 10% 15% 20%	$400 - $700	PER RACK

TDM STRATEGIES THAT WORK FOR

PART-TIME RESIDENTS

Overview

The transportation demand management (TDM) strategies at right introduce new travel options for part-time Park City residents, who may live elsewhere but also own a home in Park City. They respond to part-time residents' needs and priorities as determined through market research. They offer a diverse set of options spanning land use, policy, and programs, and they look to optimize existing transportation infrastructure while nurturing a balanced, multimodal travel network.

Part-time residents are in the Park City area with a more vacation-oriented mindset; yet, they consider themselves locals. They are in Park City for a special event, visiting family and friends, or for outdoor recreation. While their car is their main mode of transportation, they are more likely to carpool than drive alone and are willing to try transit and biking to get around.

Focus Areas

RIDESHARE · PARKING · BIKE · WALK/BIKE · TRANSIT · DEMAND MANAGEMENT · PROGRAMS · LAND USE

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	FOCUS AREA	RANGE OF REDUCTION IN VEHICLE MILES TRAVELED (VMT)	IMPLEMENTATION COSTS	
IMMEDIATE STRATEGIES				
Increased Transit Frequency to Kimball Junction		0% 5% 10% 15% 20%	$1,200,000 $425,000	CAPITAL COSTS ANNUAL OPERATING COSTS
NEAR-TERM STRATEGIES				
Bike Repair Stands		0% 5% 10% 15% 20%	$800 - $1,500	PER STAND
Bike Share System USING E-BIKES		N/A	$1,500,000 - $2,500,000	CAPITAL & OPERATING COSTS
Tailored Information & Promotions (APPLIES TO WORK TRIPS ONLY)		0% 5% 10% 15% 20%	$8 - $13	PER PERSON
Carpool/Vanpool Parking		0% 5% 10% 15% 20%	$150 - $300	PER SPACE
Transit Jump Queue Lanes		0% 5% 10% 15% 20%	Varies	
Transit Vehicle Signal Preemption		0% 5% 10% 15% 20%	Varies	
LONG-TERM STRATEGIES				
TDM Requirements for New Developments or Redevelopment POLICY		0% 5% 10% 15% 20%	N/A	
Density Bonus for Parking Reduction POLICY		0% 5% 10% 15% 20%	N/A	
Parking Demand Management		0% 5% 10% 15% 20%	N/A	
ONGOING STRATEGIES				
Bike Parking at Developments & Transit Stops		0% 5% 10% 15% 20%	$400 - $700	PER RACK

TDM STRATEGIES THAT WORK FOR

VISITORS & TOURISTS

Overview

The transportation demand management (TDM) strategies at right introduce new travel options for visitors and tourists to Park City. They respond to visitors' needs and priorities as determined through market research. They offer a diverse set of options spanning land use, policy, and programs, and they look to optimize existing transportation infrastructure while nurturing a balanced, multimodal travel network.

Visitors and Tourists are looking for a break from their everyday life and to enjoy a different environment and culture. They are in Park City to play and have fun. They may only be visiting for the day, or stay a few nights, but they will enjoy all that Park City has to offer while they are there. Their car is their main mode of transportation to and from Park City, but they are likely to carpool to get in and out of town. Inside of town, they will walk or take transit to get around.

Focus Areas

RIDESHARE · PARKING · BIKE · WALK/BIKE · TRANSIT · DEMAND MANAGEMENT · PROGRAMS · LAND USE

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	FOCUS AREA	RANGE OF REDUCTION IN VEHICLE MILES TRAVELED (VMT)	IMPLEMENTATION COSTS	
IMMEDIATE STRATEGIES				
Increased Transit Frequency to Kimball Junction		0% 5% 10% 15% 20%	$1,200,000 $425,000	CAPITAL COSTS ANNUAL OPERATING COSTS
NEAR-TERM STRATEGIES				
Bike Share System USING E-BIKES		N/A	$1,500,000 - $2,500,000	CAPITAL & OPERATING COSTS
Additional Evening Recreation Opportunities & Amenities		0% 5% 10% 15% 20%	N/A	
Real-Time Information Gathering & Messaging		0% 5% 10% 15% 20%	N/A	
Efficient Parking JOINT, FLEX, SATELLITE, AND SPACE-EFFICIENT PARKING		0% 5% 10% 15% 20%	N/A	
Tailored Information & Promotions (APPLIES TO WORK TRIPS ONLY)		0% 5% 10% 15% 20%	$8 - $13	PER PERSON
Carpool/Vanpool Parking		0% 5% 10% 15% 20%	$150 - $300	PER SPACE
Shuttle Bus Service		0% 5% 10% 15% 20%	$2,000 - $4,000	PER COMMUTER PER YEAR
Transit Jump Queue Lanes		0% 5% 10% 15% 20%	Varies	
Transit Vehicle Signal Preemption		0% 5% 10% 15% 20%	Varies	
LONG-TERM STRATEGIES				
TDM Requirements for New Developments or Redevelopment POLICY		0% 5% 10% 15% 20%	N/A	
Parking Supply Management		0% 5% 10% 15% 20%	N/A	
ONGOING STRATEGIES				
Charter Buses for Large Events (APPLIES TO EVENT TRIPS ONLY)		0% 5% 10% 15% 20%	$500 - $1,500	

TDM STRATEGIES THAT WORK FOR

COMMUTERS

Overview

The transportation demand management (TDM) strategies at right introduce new travel options for commuters who work in Park City but live elsewhere. They respond to commuters' needs and priorities as determined through market research. They offer a diverse set of options spanning land use, policy, and programs, and they look to optimize existing transportation infrastructure while nurturing a balanced, multimodal travel network.

Commuters in and out of Park City are there solely for work purposes. They may shop or dine while they are in Park City, but their primary purpose is to arrive for work and depart for home. Like others in Park City, their car is their main mode of transportation and they typically drive alone. They are willing to try alternatives modes as long as they are convenient and time efficient, meaning they are more willing to carpool than to take transit.

Focus Areas

RIDESHARE · PARKING · BIKE · WALK/BIKE · TRANSIT · DEMAND MANAGEMENT · PROGRAMS · LAND USE

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Strategy	Focus Area	Range of Reduction in Vehicle Miles Traveled (VMT) (0% – 5% – 10% – 15% – 20%)	Implementation Costs	
IMMEDIATE STRATEGIES				
Increased Transit Frequency to Kimball Junction	Transit		$1,200,000 $425,000	CAPITAL COSTS ANNUAL OPERATING COSTS
NEAR-TERM STRATEGIES				
Bike Repair Stands	Bike		$800 - $1,500	PER STAND
Efficient Parking JOINT, FLEX, SATELLITE, AND SPACE-EFFICIENT PARKING	Parking		N/A	
Tailored Information & Promotions (APPLIES TO WORK TRIPS ONLY)	Programs		$8 - $13	PER PERSON
Required TDM/ETC Coordinators at Major Employers (APPLIES TO WORK TRIPS ONLY)	Programs		N/A	
Rideshare Program (APPLIES TO WORK TRIPS ONLY)	Rideshare		$5,000 - $10,000 $24,000 - $48,000	STARTUP COSTS ANNUAL OPERATING COST
Vanpool Program (APPLIES TO WORK TRIPS ONLY)	Rideshare		$1,000 - $1,500 $125	MONTHLY OPERATING COST PER VAN MONTHLY OPERATING COST PER USER
Expanded Commute Options IMPROVEMENTS TO REGIONAL TRANSIT SERVICE, PARTICULARLY TO HEBER CITY AND KAMAS (APPLIES TO WORK TRIPS ONLY)	Transit		$0 - $1,200,000 $48,000 - $823,700	CAPITAL COSTS ANNUAL OPERATING COSTS
Shuttle Bus Service	Transit		$2,000 - $4,000	PER COMMUTER PER YEAR
Transit Jump Queue Lanes	Transit		Varies	
Transit Vehicle Signal Preemption	Transit		Varies	
LONG-TERM STRATEGIES				
TDM Requirements for New Developments or Redevelopment POLICY	Land Use		N/A	
Parking Demand Management	Parking		N/A	
Parking Supply Management	Parking		N/A	
Subsidized Transit for Inter-City Commuters (APPLIES TO WORK TRIPS ONLY)	Transit		$1,000,000 - $2,000,000	
ONGOING STRATEGIES				
Bike Parking at Developments & Transit Stops	Bike		$400 - $700	PER RACK
Bike Showers/Lockers	Bike		$1,000 - $2,500	PER LOCKER

TDM STRATEGIES THAT WORK FOR

EMPLOYEES

Overview

The transportation demand management (TDM) strategies at right introduce new travel options for employees who live and work in Park City. They respond to employees' needs and priorities as determined through market research. They offer a diverse set of options spanning land use, policy, and programs, and they look to optimize existing transportation infrastructure while nurturing a balanced, multimodal travel network.

Similarly to residents, year-round employees live and work in Park City. Their routine doesn't change much and they drive—by themselves—directly to and from work without the need for side trips or stops. They prefer to have access to their car during the day, whether it is needed or not. Convenience is a motivating factor in their travel choices, however they are willing to consider taking transit, biking, or carpooling, particularly if their employer offered an incentive to do so.

Focus Areas

RIDESHARE · PARKING · BIKE · WALK/BIKE · TRANSIT · DEMAND MANAGEMENT · PROGRAMS · LAND USE

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PHOTO: WIKIPEDIA USER MRS.KEYSER-SOZE

	FOCUS AREA	RANGE OF REDUCTION IN VEHICLE MILES TRAVELED (VMT)	IMPLEMENTATION COSTS	
IMMEDIATE STRATEGIES				
Increased Transit Frequency to Kimball Junction		0% 5% 10% 15% 20%	$1,200,000 $425,000	CAPITAL COSTS ANNUAL OPERATING COSTS
NEAR-TERM STRATEGIES				
Bike Repair Stands		0% 5% 10% 15% 20%	$800 - $1,500	PER STAND
Efficient Parking JOINT, FLEX, SATELLITE, AND SPACE-EFFICIENT PARKING		0% 5% 10% 15% 20%	N/A	
Tailored Information & Promotions (APPLIES TO WORK TRIPS ONLY)		0% 5% 10% 15% 20%	$8 - $13	PER PERSON
Required TDM Coordinators at Major Employers (APPLIES TO WORK TRIPS ONLY)		0% 5% 10% 15% 20%	N/A	
Rideshare Program (APPLIES TO WORK TRIPS ONLY)		0% 5% 10% 15% 20%	$5,000 - $10,000 $24,000 - $48,000	STARTUP COSTS ANNUAL OPERATING COST
Vanpool Program (APPLIES TO WORK TRIPS ONLY)		0% 5% 10% 15% 20%	$1,000 - $1,500 $125	MONTHLY OPERATING COST PER VAN MONTHLY OPERATING COST PER USER
Transit Jump Queue Lanes		0% 5% 10% 15% 20%	Varies	
Transit Vehicle Signal Preemption		0% 5% 10% 15% 20%	Varies	
LONG-TERM STRATEGIES				
Affordable Employee Housing POLICY		0% 5% 10% 15% 20%	N/A	
Parking Demand Management		0% 5% 10% 15% 20%	N/A	
Parking Supply Management		0% 5% 10% 15% 20%	N/A	
ONGOING STRATEGIES				
Bike Parking at Developments & Transit Stops		0% 5% 10% 15% 20%	$400 - $700	PER RACK
Bike Showers/Lockers		0% 5% 10% 15% 20%	$1,000 - $2,500	PER LOCKER
On-site Day Care or Day Care Brokerage Services (APPLIES TO WORK TRIPS ONLY)		0% 5% 10% 15% 20%	Employee subsidized	

PERFORMANCE METRICS

Performance measures were also developed to track and monitor performance of TDM strategies. **Table 1** presents a list of proposed performance measures and data collection methods for the Park City TDM program as well as responsible parties for collecting this data.

Table 1: Performance Measures

Goal	Metrics/Performance Measures	Collection Method	Responsible Party
Reduce single-occupant vehicle (SOV) mode share	1. Reduction in drive-alone mode share for trips on gateway corridors	Vehicle occupancy counts on SR 248 and SR 224	City
	2. Increase daily bus hours of regional transit service to and from Park City	Transit operator reports	Transit operator
	3. Provide additional regional transit routes to neighboring communities	Transit operator reports	Transit operator
	4. Increase in regional transportation ridership	Transit ridership reports	Transit operator
	5. Increase in daily bus hours on local transit service	Transit operator reports	Transit operator
	6. Increase frequency on Park City transit network.	Transit operator reports	Transit operator
	7. Increase and maintain competitive transit travel time	Transit operator reports	Transit operator
	8. Increase in local transit ridership	Transit ridership reports	Transit operator
	9. Increase in visitor use of transit	Intercept surveys	City
	10. Expand the number of intercept park-and-ride facilities on gateway corridors	City and/or transit operator report	City and/or transit operator
	11. Increase in carpooling/vanpooling	Employee survey for major employers and resorts	Employers
Reduce single-occupant vehicle (SOV) mode share	12. Increase and maintain competitive bicycle travel time to and from major destination areas	Field travel time assessment and report	City

Table 1: Performance Measures

Goal	Metrics/Performance Measures	Collection Method	Responsible Party
Reduce single-occupant vehicle (SOV) mode share	13. Increase in bicycle use in summer months	Bike counts at major destinations • Rail Trail – near Bonanza Drive • Poison Creek Trail – near City Park and near Main Street • McLeod Creek Trail – near Holiday Ranch Loop Road • Farm Trail – near Thaynes Canyon Drive • Park City Pkwy Trail – near Bonanza Drive	City
	14. Increase in pedestrian access in summer months	Pedestrian counts at major destinations • Rail Trail – near Bonanza Drive • Poison Creek Trail – near City Park and near Main Street • McLeod Creek Trail – near Holiday Ranch Loop Road • Farm Trail – near Thaynes Canyon Drive • Park City Pkwy Trail – near Bonanza Drive	City
Reduce Vehicle Miles Traveled (VMT) per Employee and Resident	15. Shorter commute distances	Employee survey for major employers and resorts	Employers
	16. Percentage of housing units within 1/4 mile of transit routes and paved multiuse trails.	GIS analysis	City
	17. Local affordable housing options for employees	Review number of affordable housing units within the municipal boundaries that are provided to local employees below market rate	City
	18. Reduction in parking utilization	Parking utilization counts at major employers and resorts	Employers
	4. Increase in regional transportation ridership	Transit ridership reports	Transit operator
	8. Increase in local transit ridership	Transit ridership reports	Transit operator

Table 1: Performance Measures

Goal	Metrics/Performance Measures	Collection Method	Responsible Party
	9. Increase in visitor use of transit	Intercept survey of visitors	City
	11. Increase in carpooling/vanpooling	Employee survey for major employers and resorts	Employers
Reduce Vehicle Miles Traveled (VMT) per Employee and Resident	13. Increase in bicycle use in summer months	Bike counts at major destinations • Rail Trail – near Bonanza Drive • Poison Creek Trail – near City Park and near Main Street • McLeod Creek Trail – near Holiday Ranch Loop Road • Farm Trail – near Thaynes Canyon Drive • Park City Pkwy Trail – near Bonanza Drive	City
	14. Increase in pedestrian access in summer months	Biannual pedestrian counts at major destinations • Rail Trail – near Bonanza Drive • Poison Creek Trail – near City Park and near Main Street • McLeod Creek Trail – near Holiday Ranch Loop Road • Farm Trail – near Thaynes Canyon Drive • Park City Pkwy Trail – near Bonanza Drive	City
	19. Reduce per capita VMT and associated petroleum consumption and greenhouse gas emissions	Estimate reductions using Utah Household Travel Survey data, local mode share data, and VMT estimate from major gateway corridors	City
Manage congestion on major corridors	20. Growth in traffic volume on gateway corridors (peak and daily) will not exceed the percentage growth in annual housing and employment growth	Cordon counts on SR 248 and SR 224	City
	21. Growth in traffic volume on internal corridors (peak and daily) will not exceed the percentage growth in annual housing and employment growth	Cordon counts on Bonanza Drive and Park Avenue (entrance to downtown)	City

Table 1: Performance Measures

Goal	Metrics/Performance Measures	Collection Method	Responsible Party
	22. Manage congestion during festivals and special events	Review of Master Festival License or Special Event Permit Submittals	City
Provide TDM program awareness and utilization	23. Number of potential users who are aware of programs and services	Employee survey for major employers and resorts	Employers
	24. Number of participants in employer programs and services.	Employer report submitted by TDM coordinator	Employers

IMPLEMENTATION

An effective TDM program involves building consensus among diverse constituents; communicating goals and values; consistent messaging and rigorous management, marketing and evaluation. It also requires developing a broad base of support and participation.

Park City has already taken steps to address some of these questions by forming a Transportation Management Association (TMA). The formation of the TMA is a good beginning. However, it is recommended that a series of meetings to further process, educate and encourage full participation, and develop a clear plan with widespread support and enthusiasm for moving TDM forward. Several studies are either currently underway or recently concluded: the parking study, marketing plan, and the short-range transit study. The data from these studies, as well as the information contained in this report, should inform TDM planning.

MARKETING AND COMMUNICATION

The challenge facing the TDM program is to help Park City residents, visitors, and commuters understand the program's goals and strategies to the point that they actually change their travel behaviors. A communication campaign focused on raising public awareness of the program will nudge people living and visiting Park City and their employers to take their efforts to the next level

and start utilizing alternative modes of travel. Building a critical mass of program supporters will help grow the program into a mainstream effort. Ultimately, alternative travel can become a day-to-day norm that will make it easier to travel around Park City.

Consistent placement of messages will lead to greater awareness of alternative travel options and ultimately, adoption of alternative travel behaviors. Utilizing four main channels of communication will help disseminate the messages to the traveling public and Park City employers.

- Outreach
- Media Relations
- Grassroots
- Interactive

Channels create an informational pyramid for our key audiences. General awareness of the program is grown through outreach across various media (print, broadcast and outdoor). Audiences learn a little bit more about TDM goals and strategies through news stories that are thoughtfully placed with local media. At the grassroots level, we can interact with our audiences one-on-one and have the opportunity to customize messages to their needs and interests. Finally, on the interactive level, we can offer in-depth education about the program and its strategies and benefits though the proposed website and other online tools.

The following strategies and metrics have been identified for marketing and communication the TDM plan:

Strategies

- Educate the public on the available alternative travel options
- Create an outreach program to target and partner with large employers, encouraging the use of alternative travel options among their employees
- Partner with tourism groups to educate visitors on the available travel options
- Update city staff, including planning and development, on the TDM program strategies and solutions to keep messaging consistent
- **Metrics**
- Employee research: A follow-up survey provided to employers and employees in the Park City area. Surveys and travel pattern data will be used to identify shifts in travel behaviors.

- Intercept survey: Administered in Park City during weekday and weekend events. Survey data will be used to identify awareness of alternative modes, as well as if people are changing their travel behaviors.
- Park City Transit ridership data: Ridership counts can be used to identify an increase in alternative travel use—specifically transit use.
- Traffic counts on SR-224 and SR-248: Traffic counts will be used to identify a decrease in the number of vehicles using SR-224 and SR-248 as well as occupancy counts to measure carpooling, vanpooling and ridesharing.
- Social media click rates: Will be used to identify an increase in awareness.
- Google analytics data for website visits: Can identify an increase in program awareness.