### 3.5 TRANSPORTATION, PARKING AND CIRCULATION

This section describes the existing traffic, parking, and circulation system in the vicinity of the project site, presents the regulations applicable to the study area, identifies significance criteria for traffic, parking, and circulation impacts, and evaluates the potential impacts associated with "no project" and "plus project" conditions. In addition, future cumulative transportation impacts are presented.

## Affected Environment

This section identifies the existing transportation facilities and describes traffic conditions for the roadway network within the vicinity of the project site. The private automobile is the primary mode of transportation in the Lake Tahoe Basin. Figure 3.5-1 illustrates the site location, the study area intersection configurations, and traffic controls. Existing transit, pedestrian, and bicycle facilities are also described.

## Existing Roadways and Study Intersections

The following is a description of the key roadways within the study area:

- U.S. $\mathbf{5 0}$ is the primary highway serving Lake Tahoe's south shore. As part of its transcontinental route, within the region it connects Carson City on the east with Sacramento on the west. Although U.S. 50 is primarily aligned east-west, it assumes an orientation closer to north-south throughout the study area. Therefore, for the purposes of this study, U.S. 50 is assumed to be aligned in the north-south direction within the study area. Within the vicinity of the project, U.S. 50 has two through lanes in each direction and exclusive left-turn lanes at major intersections. A central two-way left-turn lane (TWLTL) is provided south of Lake Parkway through the study area. The posted speed limit throughout the study area is 35 miles per hour (mph), except the segment between Stateline Avenue and Lake Parkway has a posted speed limit of 25 mph .
- Kingsbury Grade (Nevada State Route 207) serves as the major access to commercial and residential areas along the Kingsbury corridor, as well as the Nevada base of Heavenly Ski Resort. In addition, this road serves as regional access between the Tahoe Basin and the Minden/Gardnerville area to the east. Near U.S. 50, this roadway consists of a single travel lane in each direction, with a TWLTL and a grade of approximately 6 percent. The posted speed limit on Kingsbury Grade is 35 mph .
- Lake Parkway is a loop roadway that provides access to the project site on the east side of U.S. 50, as well as to the casino properties on the west side of U.S. 50. Lake Parkway provides a secondary means of travel around the casino core. East of U.S. 50, Lake Parkway is a two-lane roadway with left-turn lanes at the MontBleu and Harrah's parking lot entrances on the Nevada side. On the California side, Lake Parkway is continuous with Montreal Road, which intersects Heavenly Village Way to complete the loop. West of U.S. 50, Lake Parkway has a three-lane cross section with one through lane for each direction of travel, and a TWLTL along the segment in Nevada from the state line to U.S. 50. On the California side, Lake Parkway is continuous with Pine Boulevard, which intersects Park Avenue to complete the loop

- Stateline Avenue is a two-lane roadway located immediately adjacent to and parallel to the California-Nevada state line. Stateline Avenue provides access to Harvey's Resort and Casino on the northeast side and to motel properties and residences, located in California, on the southwest side. The posted speed limit is 25 mph . East of U.S. 50, Stateline Avenue is a one-way eastbound access road to the Harrah's parking lot and Embassy Suites.
- Park Avenue is a two-lane roadway providing access to lodging and residential properties west of U.S. 50. Park Avenue also provides access to the west side of the Lake Parkway loop.

Heavenly Village Way is a two-lane roadway providing access to the Heavenly Village and the Raley's shopping area on the east side of U.S. 50. Heavenly Village Way also provides access to the east side of the Lake Parkway loop, the residential neighborhood along Montreal Road, and Van Sickle Bi-State Park. The posted speed limit is 25 miles per hour. The following study intersections are included in this analysis:

1) U.S. 50/Kingsbury Grade
2) U.S. 50/Lake Parkway
3) U.S. 50/MontBleu Main Driveway
4) U.S. 50/Stateline Avenue
5) U.S. 50/Park Avenue
6) U.S. 50/Pioneer Trail
7) Lake Parkway/MontBleu West Driveway (driveway to be removed)
8) Lake Parkway/MontBleu East Driveway (driveway to remain)
9) Lake Parkway/Park Avenue/Heavenly Village Way

The existing lane configuration and traffic controls at these study intersections are illustrated in Figure 3.5-1.

## Existing Traffic Volumes

## Existing Traffic Volume Trends

NDOT maintains a permanent automatic traffic recorder (ATR) count station at a point on U.S. 50 located 0.6 mile east (north) of the state line (between Lake Parkway and Kingsbury Grade) that yields useful information regarding traffic patterns in the project area. The monthly variation in average daily traffic (ADT) volumes is presented in Table 3.5-1. Traffic levels are highest in July ( 135.8 percent of annual average) and August ( 124.8 percent of annual average). In comparison, the average daily traffic volume in the winter month of greatest daily traffic activity (December) is 94.9 percent of annual average. As summer traffic conditions on U.S. 50 represent the peak season, the technical analysis focuses on peak summer traffic volumes. A limited analysis of traffic conditions in off-peak summer periods as well as other seasons is conducted in the intersection Level of Service (LOS) impact section of this chapter. As the area experiences the highest traffic volume during the PM peak hours, this study focuses on PM peak-hour traffic only.

| Table 3.5-1 Monthly Traffic Volumes on U.S. $\mathbf{5 0}$ (0.6 Miles North of the State Line) |  |  |
| :---: | :---: | :---: |
| Month | Monthly Average Daily Traffic Volumes (Total of Both Directions) | Percent of Annual Average Daily Traffic (\%) |
| January | 25,138 | 88.6 |
| February | 26,545 | 93.6 |
| March | 25,748 | 90.8 |
| April | 24,293 | 85.6 |
| May | 26,031 | 91.8 |
| June | 32,334 | 114.0 |
| July | 37,958 | 133.8 |
| August | 34,593 | 121.9 |
| September | 31,227 | 110.1 |
| October | 25,712 | 90.6 |
| November | 23,640 | 83.3 |
| December | 26,489 | 93.4 |
| Source: NDOT 2016 |  |  |

## Existing Intersection Volumes

Based on a review of NDOT traffic data along U.S. 50 within the site vicinity, the highest summer traffic volumes typically occur on Fridays and Saturdays. Existing summer peak-hour traffic volumes were developed for the study intersections based upon traffic counts conducted on Saturday August 12, 2017 from 3:30 PM to 5:30 PM. The raw count data is included in Appendix F-1. Consistent with other recent studies conducted in the south shore area, the $30^{\text {th }}$-highest traffic hour of the summer season is used as the design period for determining the need for intersection and roadway improvements. The count data was increased by a factor of approximately 4.5 percent to reflect the $30^{\text {th }}$-busiest hour of vehicular traffic. These adjustments were derived based upon a review of NDOT hourly traffic volumes at a point on U.S. 50 between Lake Parkway and Kingsbury Grade (the closest available count location) for the entire summer of 2017. The resulting 'existing no project' peak-hour traffic volumes are presented in Figure 3.52.

Note that the existing traffic volumes reflect some level of development at the Project 3/Chateau site (in the southwest corner of the intersection of Stateline Avenue and U.S. 50), including approximately 24,820 square feet of retail uses and 10,640 square feet of restaurant uses, for a total existing floor area of 35,460 square feet. Finally, the volumes reflect conditions without an official paid parking program at the casinos. The casinos began charging for parking in 2017 and 2018 (Harvey's started on 7/30/18, Harrah's on 11/13/18, Hard Rock in 2018 and MontBleu in 2017). The casinos were not charging for parking during the traffic counts that were completed for the Project in 2017.

## Existing Roadway Traffic Volumes

Daily traffic volumes (ADT) on Lake Parkway without the project were estimated based on the 2017 peakhour volumes and the ratio of daily-to-peak-hour volumes. Based upon a review of the NDOT hourly traffic volumes on U.S. 50, the ratio of daily-to-peak-hour volumes in the study area during the summer season is approximately 12.5. Applying this factor to the peak-hour volumes along Lake Parkway yields an estimated ADT of about 12,340 at a point west of the MontBleu driveways and 11,410 at a point east of the driveways.

For purposes of the roadway LOS analysis, peak-hour directional traffic volumes were estimated based upon the volumes at the adjacent study intersections. The existing peak-hour roadway volumes by direction are presented below in the roadway LOS section of this Chapter.

## Existing Intersection Operations

Level of Service (LOS) is a quantitative and qualitative measure of traffic conditions on isolated sections of roadway or intersections. LOS ranges from " $A$ " (with no congestion) to " $F$ " (where the system fails with gridlock or stop-and-go conditions prevailing). Detailed LOS descriptions are included in Appendix F-2. As is the standard for traffic engineering analyses, intersection LOS is analyzed based upon the procedures presented in the Highway Capacity Manual, $6^{\text {th }}$ Edition (Federal Highways Administration, 2017) using the Synchro software (Version 10, Trafficware 2017). A saturation flow rate of 1,750 vehicles per hour per lane is used in this analysis, consistent with other traffic studies by LSC in this area. This is lower than the default value ( 1,800 ), reflecting the relatively high level of tourist traffic and pedestrian activity in the casino core during the summer season. The LOS standards for the jurisdictions with regulatory authority in the study area are described below in the Regulatory Setting section of this Chapter.

The existing LOS at the study intersections is summarized in Table 3.5-2, and the LOS calculations are contained in Appendix F-3 for further reference. All study intersections currently operate at an acceptable level of service (LOS D or better).

## Existing Roadway Operations

The TRPA Regional Plan Update EIS provides maximum allowable two-way peak-hour volumes to achieve a specific LOS for each type of roadway. These volume thresholds were developed based on standard Highway Capacity Manual methodologies. This roadway LOS "lookup table" is contained in Appendix F-4, and the allowable traffic volumes are displayed in the middle portion of Table 3.5-3. The roadway LOS standards for the jurisdictions with regulatory authority in the study area are described below in the Regulatory Setting section of this Chapter. For any roadway segment operating at LOS E, it is necessary to determine whether LOS E operations occur for more than four hours per day. Existing roadway LOS is shown in Table 3.5-3 for the following key roadway locations in the study area:

- U.S. 50 between Kingsbury Grade and Lake Parkway
- U.S. 50 between Lake Parkway and MontBleu
- U.S. 50 between MontBleu and Stateline Avenue
- U.S. 50 between Stateline Avenue and Park Avenue/Heavenly Village Way
- U.S. 50 between Park Avenue/Heavenly Village Way and Pioneer Trail

As indicated in the table, all study roadway segments currently operate at LOS D or better, with the exception of the following two segments:

- U.S. 50 between Kingsbury Grade and Lake Parkway - LOS E
- U.S. 50 between Park Avenue and Pioneer Trail - LOS E

As these segments currently operate at LOS E for not more than four hours per day, the LOS is considered to be acceptable according to the applicable standards.


Table 3.5-2: Existing Intersection Level of Service

| Intersection | Control | $\begin{gathered} \text { LOS } \\ \text { Standard }^{1} \end{gathered}$ | Applies to | Existing Without Project |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | LOS | Delay (sec/veh) |
| US 50/Kingsbury Grade | Signal | D/E | total intersection | B | 19.1 |
| US 50/Lake Parkway | Signal | D/E | total intersection | C | 30.0 |
| US 50/Montbleu Main Driveway | TWSC | E | worst movement | D | 27.8 |
| US 50/Stateline Avenue | Signal | D/E | total intersection | D | 43.5 |
| US 50/Park Ave/Heavenly Village Way | Signal | D/E | total intersection | D | 48.1 |
| US 50/Pioneer Trail | Signal | D/E | total intersection | C | 29.6 |
| Lake Parkway/Western Montbleu Driveway | TWSC | E | worst movement | C | 24.7 |
| Lake Parkway/Eastern Montbleu Driveway | TWSC | E | worst movement | B | 13.1 |
| Lake Parkway/Heavenly Village Way | AWSC | D/E | total intersection | D | 28.8 |

Note: TWSC = Two-Way Stop-Controlled; AWSC = All-Way Stop-Controlled
Note: Bold indicates the LOS standard is exceeded. A bold LOS "E" indicates LOS E for more than 4 hours per day, which exceeds the LOS standards.
Note 1: "D/E" indicates an LOS standard of "D", but "E" may be allowed for not more than 4 hours per day.
Source: LSC Transportation Consultants, Inc.

## Planned Major Roadway Projects

The approved U.S. 50/South Shore Community Revitalization Project (also referred to as the "Loop Road" Project) will modify the roadway network. The selected alternative, Alternative B (also referred to as the "Triangle Alternative"), would construct a new four-lane alignment for U.S. 50 along the mountain-side portion of the Lake Parkway loop. With implementation of this alternative, the following key improvements are assumed:

- A new dual-lane roundabout would be provided at the U.S. 50/Lake Parkway intersection. As an option, this intersection would remain signalized and be upgraded for the modified lane configuration.
- New traffic signals would be installed along New U.S. 50 at the Harrah's Driveway and at Heavenly Village Way.
- The U.S. 50/Pioneer Trail intersection would be relocated to the west of its existing location.
- Existing U.S. 50 would be reduced to one lane in each direction from Lake Parkway to Park Avenue, with landscaped medians, left turn pockets, bike lanes, and sidewalks. Between Park Avenue and Pioneer Trail, existing U.S. 50 would either remain a 5-lane roadway or be reduced to a three-lane roadway.
- The posted speed limit on New U.S. 50 would be 40 mph . The posted speed limit on existing U.S. 50 is assumed to be reduced to 25 mph .

Although the Loop Road Project is currently subject to funding approvals, this study includes scenarios with the Loop Road Project under existing year and future cumulative year conditions with the proposed TSEC Project.


## Existing Driver Sight Distance

Driver sight distance was reviewed at the existing MontBleu driveways. Driver sight distance standards are categorized under two basic types: intersection and stopping sight distance. Intersection sight distance (also known as corner sight distance) is the distance a driver waiting at a cross street (or a driveway) should be able to see in either direction along the main roadway in order to accurately identify an acceptable gap in through traffic. A clear line of sight should be maintained between the driver pulling out of the driveway and any approaching vehicles on the major street. Sight distance should be sufficient to provide at least 7.5 seconds for the driver on the crossroad to complete the necessary maneuver while the approaching vehicle travels at the assumed design speed of the main roadway. The second type of driver sight distance is stopping sight distance, which is the distance required by the driver of a vehicle moving along the main roadway (such as Lake Parkway) to safely bring a vehicle to a stop after an object on the road becomes visible. This is the minimum distance needed for a driver to see an object in his/her path (such as a vehicle turning onto the roadway) and safely come to a stop.

Currently, Lake Parkway is a Douglas County roadway with a functional classification of Local Road. According to the Douglas County Design Criteria and Improvement Standards, intersection sight distance should be evaluated using the definitions in the American Association of State Highways and Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets. Based upon a speed of 40 miles per hour along Lake Parkway, the minimum corner sight distance for left turns from the driveway is 445 feet. For right turns, 305 feet of corner sight distance is needed. At the eastern driveway location, Lake Parkway has a grade of approximately 6 percent. Considering the grade, the required stopping sight distance along Lake Parkway is 333 feet in the downhill direction (toward U.S. 50) and 278 feet in the uphill direction (away from U.S. 50). (No adjustment of the corner sight distance value is needed because both the major- and minor-road vehicle will be on the same grade when departing from the intersection.)

No driver sight distance concerns are identified at the existing western MontBleu driveway on Lake Parkway. The eastern driveway on Lake Parkway currently provides about 445 feet of corner sight distance to the right, which meets the standard. Looking to the left, over 450 feet of corner sight distance is provided. Furthermore, stopping sight distance in exceedance of 350 feet is available along Lake Parkway for both directions of travel. As the actual sight distance values meet or exceed the requirements, no driver sight distance issues are identified at the existing MontBleu driveways. Finally, at the main driveway on U.S. 50, at least 265 feet of corner sight distance is provided looking to the right (north), and at least 545 feet looking to the left (south). No driver sight distance concerns are identified at the main driveway.

## Existing Transit Conditions

Transit services in the South Shore area are provided through the Tahoe Transportation District. The MontBleu site is served by Route 19X, Route 22, Route 50 and Route 55 and in winter is also served by a skier shuttle.

- Route 19X provides a single daily round-trip between Carson City and the Stateline Transit Center, via Minden and Gardnerville.
- Route 22 extends from Stateline Transit Center on the west to Gardnerville on the east. This route runs from 5:50 AM to 8:17 PM. A total of 14 runs are operated daily in each direction, with 6 runs (in commute periods) extending to Gardnerville and 8 (mid-day) serving the Tahoe Basin portion of the route only. Service is generally provided hourly.
- Route 50 serves a corridor U.S. 50 between Kingsbury Transit Center in the east, the Stateline Transit Center in the casino core and the " $\gamma$ " Transit Center in the west. It operates between 6:30 AM and 8:28 PM, providing two runs per hour in each direction between the 8 AM and 5 PM hours and hourly service in other times.
- Route 55 also connects the Kingsbury Transit Center on the east with the South Y Transit Center on the west, but serves areas south of the U.S. 50 corridor (such as Lake Tahoe Community College) between the South Y Transit Center and Stateline Transit Center. This route operates hourly between 6:00 AM and 6:50 PM.

There is one bus stop in front of MontBleu, on U.S. 50 east of the MontBleu driveways. Across the highway there are bus stops in front of the Hard Rock Casino and in front of Harvey's. Each of these bus stops have benches but no shelters.

The TTD routes and schedules were reorganized in March of 2019. The previous routes serving the MontBleu site carried a total of 356,620 passenger-trips per year. Of this total ridership, 75 percent was on the routes serving California and 25 percent on the routes serving Nevada.

Additionally, the South Tahoe Airporter provides a schedule of 10 runs per day between the Casino Core and Reno-Tahoe International Airport, providing a viable option to the private automobile for overnight guests arriving in Reno. There is also a single daily round-trip connecting Stateline with Sacramento.

## Existing Bicycle and Pedestrian Conditions

Sidewalks are provided along both sides of U.S. 50 and along the south side of Lake Parkway (adjacent to MontBleu in the vicinity of the site. In addition, there are on-street bike lanes along Lake Parkway. Protected pedestrian crossing of U.S. 50 is provided at the traffic signals in the study area. There are two intersections in the Casino Core with "pedestrian only" phases (also called "pedestrian scrambles") - one at the U.S. 50/Stateline Avenue intersection, and another approximately 700 feet north of this location (at the MontBleu Service Driveway).

## REGULATORY SETTING

Numerous transportation-related standards and criteria apply to the study area. Key transportation regulations and standards are summarized below.

## Tahoe Regional Planning Agency

## Lake Tahoe Regional Plan

Chapter 3, Transportation Element, of the Regional Plan provides goals and policies that are intended to establish a safe, efficient, and integrated transportation system that provides quality mobility options
for all sectors of the population, supports the region's economic base, enhances quality of life, and maximizes opportunities for environmental benefits. The Transportation Element includes transportation goals, policies, and implementation measures that address multiple aspects of transportation planning and interact to create a successful multi-modal transportation system. TRPA's Goals and Policies sets standards for vehicle "Level of Service (LOS)." A more detailed definition of LOS is provided in the previous section of this Chapter. The TRPA Goals and Policies require that peak-period traffic flow not exceed the following:

4 LOS C on rural recreational/scenic roads;
」 LOS D on rural developed area roads;
4 LOS D on urban developed area roads;
ム LOS D for signalized intersections; and
L LOS E may be acceptable during peak periods in urban areas, not to exceed 4 hours per day.
These vehicle LOS standards may be exceeded when provisions for multi-modal amenities and/or services (such as transit, bicycling, and walking facilities) are adequate to provide mobility for users at a level that is proportional to the project-generated traffic in relation to overall traffic conditions on affected roadways. While the Tahoe Regional Planning Compact looks to "reduce the dependency on the private automobile" there are currently no adopted requirements or standards regarding the quality of service of other travel modes (i.e. transit, biking, or walking) that could potentially reduce the demand on the roadway system. While TRPA does not have specific standards for roundabouts, the TRPA LOS standards for signalized intersections are assumed to apply to the roundabout worst movement. TRPA has no standards specific to unsignalized intersections.

## Regional Transportation Plan

The 2017 Linking Tahoe: Regional Transportation Plan (TRPA, 2017) is Lake Tahoe's blueprint for a regional transportation system that enhances the quality of life in the Tahoe region, promotes sustainability, and offers improved mobility options for people and goods. The 2017 Regional Transportation Plan's (RTP) vision is a first-class transportation system that prioritizes bicycling, walking, and transit, and serves residents and visitors while contributing to the environmental and socioeconomic health of the Region. Important objectives of the plan are to reduce the overall environmental impact of transportation in the region, create walkable, vibrant communities, improve transportation safety, manage transportation operations and congestion, and provide real alternatives to driving.

## Environmental Threshold Carrying Capacities

## Vehicle Miles Traveled

VMT is a computed value which correlates to the extent of an area's reliance on the private automobile for trip-making. The TRPA TransCAD Travel Demand Model provides a forecast of the number of trips made on the highway network and the distance between trip origins and destinations for each trip purpose. Total VMT is the sum of all these trip lengths.

The TRPA's Threshold Evaluation Report includes two air quality management threshold standards that relate to transportation facilities in the region: (1) the reduction in VMT by 10 percent from 1981 base year conditions to reduce nitrate deposition; and (2) the reduction in VMT by 10 percent from 1981 base
year conditions to improve visibility. The VMT threshold is periodically updated whenever TRPA updates its transportation model. The most recent VMT threshold was calculated at 2,030,938 for a peak summer day, as indicated in the Regional Transportation Plan (TRPA, 2017), and the existing VMT in the Tahoe Basin over the course of a peak summer day is approximately 1,937,070. Based on the 2017 calculation, which in turn uses a 2014 base year, the daily VMT is "Meeting Target, Indicator Improving". However, to remain conservative in the analysis of project impacts, the existing VMT in the Tahoe Basin over the course of a peak summer day is assumed to be over the threshold.

The TRPA's Guidance for Assessment of Vehicle Miles Traveled (VMT) Impacts of Projects in the Tahoe Basin (2019) establishes a methodology for determining the VMT impacts of projects proposed in the Tahoe Region, in order to provide consistency for applicants when developing environmental documents to meet TRPA requirements and to better align environmental analyses with the modeling tools used to generate the VMT threshold standard.

## Code of Ordinances

Transportation and mobility requirements for Area Plans are included in Code Section 13.5, Contents of Area Plans. Changes in daily vehicle trip ends (DVTE) as a result of a change in project operation are discussed in Section 65.2, Traffic and Air Quality Mitigation Program, of the TRPA Code. Temporary activities are governed by section 2.3 .6 , and construction projects are required to comply with TRPA's standard conditions of approval.

## South Shore Area Plan

The South Shore Area Plan (TRPA and Douglas County, 2013) is a component of the Regional Plan used for implementing land use goals, policies and ordinances in the Stateline and Kingsbury areas of Douglas County, Nevada. The South Shore Area Plan (SSAP) sets goals for improving walkability and bike-ability while improving the aesthetic character of the Douglas County town center areas.

## Tourist Core Area Plan

The Tourist Core Area Plan (City of South Lake Tahoe, 2013) is a component of the Regional Plan used for implementing land use goals, policies and ordinances in the area of the City of South Lake Tahoe that was previously guided by the Stateline/Ski Run Community Plan. The Tourist Core Area Plan (TCAP) encourages general improvement and enhancement for the built environment and it provides a framework that will change the existing conditions into opportunities for redevelopment with a focus on achieving on- the-ground environmental improvements consistent with the City's General Plan and environmental thresholds goals of the 2012 Regional Plan. The TCAP's transportation objectives include enhancement of mobility patterns by enabling users to satisfy their travel needs while supporting the area's environmental, social, and recreational goals.

Policy T-1.2 in the TCAP states, "Strive to maintain a level of service (LOS) D or better on all arterials, collectors and at signalized intersections. This LOS standard may be exceeded during peak periods, not to exceed 4 hours per day when provisions for multi-modal amenities and/or services (such as transit, bicycling, and walking facilities) are adequate to provide mobility for users."

## State

Although the Nevada Department of Transportation (NDOT) and California Department of Transportation (Caltrans) provide Level of Service (LOS) standards for intersection and roadway operations, the standards set forth by the TRPA typically govern over the state standards for projects located within the Tahoe Basin, but any projects affecting a state highway are also subject to NDOT and Caltrans review. The standards set forth by Caltrans and NDOT are similar to those established by TRPA. The LOS standards set forth by the TRPA are applied in the analysis herein.

## Douglas County

The Douglas County Design Criteria and Improvement Standards (2019) provide the following applicable roadway standards:
"A traffic LOS C or better, in the context of providing a safe, efficient, and convenient transportation system, shall be maintained through mitigation of impacts from all conditions on all County, Town, and District maintained arterial and collector roads and at County road intersections, except as noted in Implementation Strategies 10.11.01.2 and 10.11.01.3 of the Douglas County Master Plan."

The Douglas County Master Plan also establishes traffic capacity and LOS criteria for various types of highways, and an operational level of service for signalized intersections, as discussed below:

4 LOS "C" on all principal arterial roads maintained by the County, Town, and District (Implementation Strategy 10.11.01.1)

4 LOS "D" on all principal arterial roads maintained by the Nevada Department of Transportation (NDOT) (Implementation Strategy 10.11.01.2)

The existing applicable parking code for the project is presented in the Douglas County Consolidated Development Code, Title 20 (Douglas County 1998).

## City of South Lake Tahoe

Policy TC-1.2 in the South Lake Tahoe General Plan says that the City shall establish a minimum LOS standard of "D" for all City streets and intersections. Up to four hours per day of LOS "E" shall be considered acceptable. LOS shall be considered based on average delay for the intersection as a whole for signalized intersections, and for the worst approach for intersections controlled by stop signs or roundabouts. LOS shall be evaluated for a busy, but not peak, traffic day in the peak seasons.

## Impact Evaluation Criteria

Based on the "Transportation and Circulation" criteria from TRPA's Initial Environmental Checklist, the proposed project would result in a significant impact to transportation and circulation if it would substantially impact existing highway systems or alter present patterns of circulations, defined here as:

4 Cause a study roadway within a rural area to worsen from LOS D or better to LOS E or worse;

4 Cause a study roadway within an urban area to degrade as follows:

- worsen from LOS E or better to LOS F;
- worsen from LOS D or better to LOS E for 5 hours or more;
- worsen from LOS E (for 4 hours per day or less) to LOS E for 5 hours or more; or
- worsen an LOS F condition.

4 Cause a study intersection controlled by signal or roundabout to worsen from LOS A through D or less than 5 hours per day of LOS E to LOS F or to LOS E for 5 or more hours per day;

4 Cause a study intersection not controlled by signal or roundabout to worsen from LOS A through $E$ to LOS F, or to increase delay where LOS F currently exists; or
$\triangle$ Cause total VMT within the Tahoe region to exceed the TRPA Air Quality Threshold value of 2,030,938;

4 Cause a net increase in total VMT within the Tahoe region;

4 Result in inadequate transit service to meet demand or substantively negatively impact existing transit operations;

4 Result in inadequate parking conditions;

【 Substantially increase traffic hazards to bicyclists and pedestrians, or substantially impact existing bicycle/pedestrian facilities; or
$\triangle$ Substantially increase hazards due to a design feature or incompatible uses.

## Environmental Consequences and Recommended Mitigation

## Impact: Intersection LOS Under 'Existing Year With Project' Conditions - Proposed Project and Alternatives A, B and C: Intersection LOS under 'existing year with project' conditions would exceed the LOS threshold at some study area intersections.

Analysis: First, the trip generation of the proposed project is analyzed for the summer "design day". Next, the project's summer trip distribution pattern is estimated and the project traffic is assigned through the study intersections. The resulting traffic volume impacts and traffic operational impacts are evaluated, including the following issues:

- Daily traffic (ADT) impacts on Lake Parkway
- Intersection Level of Service (LOS) and Queuing
- Roadway LOS
- Analysis of the Need for New or Expanded Turn Lanes


## Trip Generation

Trip generation is the evaluation of the number of vehicle-trips that would have either an origin or destination at the project site. Daily vehicle-trip ends (DVTE) and peak-hour vehicle trips are determined in order to analyze the potential impacts from the proposed project. As standard trip rates are not available for an event venue, the estimation of daily and PM peak-hour trip generation is developed based on a "person-trip" analysis. That is, the persons expected on-site over the course of the day are factored by the expected automobile travel mode split and divided by the vehicle occupancy rate to estimate the number of vehicle trips accessing the site.

To date, the Feasibility Study for a New Multipurpose Entertainment and Conference Center Development on the South Shore was prepared by the firm of Convention Sports and Leisure (January 20, 2015), and a Scoping Notice was prepared in January 2018. These documents provide useful background information on the potential facility, as summarized in Table 3.5-4. A review of this data indicates the following:

- A market for approximately 130 events per year was identified, with most of the events likely occurring in spring, early summer and fall months. Of these, the majority of events are corporate/association meetings (45) and banquets and receptions (40), serving up to 1,200 attendees. In addition, about 30 concert/entertainment events are expected per year.
- Surveys of potential conference and corporate clients provide an indication of the distribution of such events by size. For instance, while the largest corporate event client indicated an average attendance of $4,800,90$ percent of these potential clients reported an average attendance of 2,300 or less. This indicates the number of large events per year would be relatively limited, raising the potential for scheduling in periods of high parking availability to avoid parking issues.
- Surveyed organizations indicated that their interest in holding events in South Tahoe is greatest in the spring and fall, and relatively low in Tahoe's busiest summer and winter seasons. In fact, none of the potential convention organizations indicated an interest in holding their convention in July, August or December. TSEC events could take advantage of the region's current seasons of low lodging utilization and gaming activity.


## Trip Generation on Summer Design Day

The trip generation analysis for the proposed TSEC is based upon expected attendee and employee levels and a review of available information regarding travel characteristics in the vicinity. For purposes of this analysis, the "design day" assumes a 2,500-attendee concert/entertainment or sporting event occurs at the proposed venue on a busy summer day, along with implementation of the proposed paid parking program and microtransit service. A concert/entertainment or sporting event is assumed, rather than a convention/conference event, in order to yield conservative results regarding impacts (conservatively high traffic volumes). A convention/conference event would not be expected to generate as much vehicular traffic going to/from the event venue as an entertainment or sporting event, because the majority of convention/conference attendees are overnight visitors, generally within walking distance of the facility.

The trip generation analysis of the proposed uses at the project site over the course of the summer design day is based on the following information/assumptions:

- Only one event per day is assumed to occur at the proposed event center during the busy summer season. The design day assumes no concert event at Harvey's.

Table 3.5-4: Background Information on Event Center Expected Use

| Type of Event | Events per year |
| :--- | :---: |
| Concerts and Entertainment | 30 |
| Conventions and Conferences | 5 |
| Public/Consumer Shows | 5 |
| Corporate Meetings | 45 |
| Sporting Events | 5 |
| Banquets/Receptions/Other Events | 40 |
| TOTAL | 130 |


| Size of Events | Percentile of Maximum Event | Number of Pers |  |
| :---: | :---: | :---: | :---: |
| Conventions/ Conferences | $\begin{gathered} 100 \% \\ 90 \% \\ 50 \% \end{gathered}$ | $\begin{gathered} 2,100 \\ 1,900 \\ 450 \end{gathered}$ | Average Attendees of Surveyed Organizations (Includes Exhibitors) |
|  |  |  |  |
|  |  |  |  |
| Corporate Events | 100\% | 4,800 |  |
|  | 90\% | 2,300 |  |
|  | 50\% | 450 |  |
| Concerts/Entertainment | Up to | 6,000 | Attendees |
| Sporting Events | Up to | 4,200 | Participants \& Spectators |
|  | Mid-Tier Events | 2,100 |  |

Source: Event Center Project Description and Feasibility for a New Multi-Purpose Entertainment \& Conference Center Development on the South Shore, Conventions Sports and Leisure, January 20, 2015.

PM peak-hour trip generation is estimated for two scenarios: an event starting during the peak hour, and an event letting out during the peak hour (in order to identify the worst-case scenario regarding traffic impacts).

- An average vehicle occupancy rate of 2.77 persons per vehicle is assumed for event attendees on the summer design day, based on the average of the vehicle occupancy rates provided in the LTVA Summer 2017 Concert Surveys for concert/entertainment events, public/consumer shows, and sporting events.
- Approximately 75 part-time employees are assumed to report to the venue for the event.
- Approximately 10 full-time employees are assumed to be on-site on the summer design day. Each full-time employee is assumed to commute to and from work, plus one-third of the fulltime employees are assumed to make an additional round-trip off-site during their shift for lunch, errands, etc.
- About 20 delivery/service/ utility vehicles are assumed to be on-site over the course of the day.


## MODE SPLIT ANALYSIS

A portion of trips made to/from the event venue are expected to be made via modes other than the private automobile. First, "base" reductions are analyzed, reflecting existing non-auto travel modes in the project area. Next, reductions are evaluated for the proposed paid parking program for the Casino Core (per Program agreement) and microtransit service (described below). Finally, the resulting overall reduction for non-auto modes is calculated.

## Base Reductions for Non-Auto Travel

The following "base" reductions do not reflect the additional reduction in vehicle trips resulting from the proposed paid parking program and microtransit service.

- Attendees - Approximately 82 percent of event attendees are assumed to travel to/from the event via private automobile, based on the results of the LTVA Summer 2017 Concert Survey. The remaining 18 percent are assumed to access the event via existing non-auto transportation modes (transit, pedestrian, bicycle).
- Employees - Some trips made by employees are via non-auto modes. The Stateline area has an observed high level of non-auto travel that tends to reduce the vehicular trip generation of workers. Fortunately, the TRPA periodically conducts surveys of persons at commercial and recreational centers throughout the region, including in the Stateline area. A review of the TRPA 2018 and 2014 Summer Travel Mode Share Surveys conducted in the Stateline area indicates that 46 percent of work trips are made via private automobile and the remaining 54 percent are made via non-auto modes. This level of non-auto travel is already accounted for in the 'existing no project' traffic volumes. To result in conservatively high traffic volumes with the proposed project, however, a 45 percent reduction for non-auto commuting is applied to employees of the proposed event venue.


## Reductions for Paid Parking

## Impact of Paid Parking on Existing Casino Core Traffic Volumes

The proposed project includes implementation of a paid parking program for the Casino Core ${ }^{1}$. Specifically, as part of Events Center operations, the TDVA would secure agreement from the four Stateline casino resort properties (Harvey's, Harrah's, MontBleu and Hard Rock Hotel and Casino) to institute a year-roundconsistent paid parking program. At a minimum, the paid parking program would be in place on a daily basis during the peak summer visitation period (e.g., mid June to mid-September) and each weekend during heavily visited seasons throughout the rest of the year." Employees are exempted from the paid parking program.

It is therefore necessary to evaluate the impact of this element of the project on traffic conditions. This analysis focuses on a busy summer day, consistent with the TRPA air quality VMT threshold. The parameters of the paid parking program are as follows:

[^0]- Paid parking is assumed for Harvey's, Harrah's, MontBleu and Hard Rock Hotel and Casino.
- A flat parking fee of $\$ 20$ per day, at a minimum, is assumed. This includes all guests/customers, including club card holders.
- No other changes in parking supply and controls are assumed. The existing paid parking at the Heavenly Village Parking Garage and along Transit Way and Bellamy Court are assumed to stay in place, along with other existing parking limitations. No other parking management measures (such as additional parking duration limits) are assumed.
- Parking passes or permits are provided to all employees (including employees associated with the proposed event venue).

This analysis first focuses on identifying the appropriate proportionate reduction in existing vehicle-trips due to the paid parking program. Available traffic count data was then summarized to identify the existing summer daily trip generation, and these proportions applied.

## Evaluation of Percentage Impact on Trip Generation

Total vehicle-trips generated by the casino properties were considered in three categories for purposes of this analysis: employee trips, visitor/customer trips, and service trips. Employee and service trips (such as deliveries, maintenance activities and refuse hauling) would not be impacted by paid parking. For the other two categories, a review of available professional literature was conducted. While the bibliography at the end of this document identifies all studies reviewed, the following focuses on those studies found to be pertinent to the Stateline analysis.

Due to the unique setting of the proposal (imposition of a district-wide paid parking program in a recreation/gaming-focused activity center set in a mountain resort area), there are no case studies or previous research projects that generate findings that can be directly applied ${ }^{2}$. Instead, it is necessary to conduct a two-step evaluation. For each type of trip, the professional literature is first reviewed to identify a "generic" reduction for the context in which the studies were conducted (larger urban settings). The various transportation factors specific to the Stateline area of the Tahoe Region are then considered. The potential shifts in travel mode are then evaluated, based on data regarding trip patterns and transit system capacity, to identify if a reasonable scenario that accomplishes the shift can be defined. Finally, a "capacity constrained" overall mode shift is identified.

## Paid Parking Impact on Existing Visitor Trips

The available literature regarding the traffic impact of imposing paid parking is limited. As summarized in Impacts of Parking Pricing and Parking Management on Passenger Vehicle Use and Greenhouse Gas Emissions Policy Brief by Steven Spears of University of California, Irvine; Marlon G. Boarnet of University

[^1]of Southern California; Susan Handy, University of California, Davis: "The available evidence on the direct impact of parking pricing on VMT is relatively scarce. In addition, much of the evidence that does exist was obtained from studies that are now at least 15 years old." In addition, a literature review conducted by LSC indicated that much of the research has focused on employee/commute trips (2014). Studies that address how drivers making recreational/lodging/commercial trips respond to paid parking are very limited. No specific "before and after" studies of the impacts of initiating a parking fee to a gaming, lodging or recreational site with free parking were found to be available. However, other studies that considered the impact of a change in parking fees were found:

- Pricing and Parking Management to Reduce Vehicle Miles Traveled (Caltrans Division of Research, Innovation and System Information, 2018) recognizes increasing parking prices may reduce VMT.
- A study of parking prices in San Francisco conducted in 2013 by the San Francisco County Transportation Authority indicated an average elasticity of -0.53 in the Fisherman's Wharf area. In comparison, the downtown San Francisco business district had an elasticity of $-0.40^{3}$. This indicates higher sensitivity to paid parking among persons traveling to a recreation/entertainment area than to an employment area.
- A study in Dublin, Ireland indicated much lower price sensitivity during a well-known late night shopping/nightlife period than during the day.
- A synthesis paper prepared by the Canadian Parking Association identifies a typical elasticity for shoppers with regards to a change in parking cost of -0.30 .
- Parking price elasticity impacts on VMT was found in a 1999 study by TRACE to be -0.04 for commuters and -0.15 for "other", indicating that other trips are relatively sensitive to parking pricing.

These studies indicate that a reasonable "base" reduction factor (prior to consideration of local factors) is a 30 percent reduction. To assess the impact of local Tahoe factors, it is necessary to consider three types of visitor trips: the regional access trip (to/from the Tahoe Region from a visitor's area of residence), local trips within the Tahoe Region for gaming purposes and day visitors.

## Regional Access Trip by Overnight Visitors Lodged in Casino Core

The majority of overnight visitors staying in the Stateline area consists of persons either driving directly from their home or flying into regional airports and using rental cars to drive to the area. Local factors to consider are as follows:

- The Lake Tahoe Visitors Authority Four Season Visitor Profile Study 2015/16 indicates an average per-party daily expenditure of $\$ 833$ in summer. A $\$ 20$ per day parking fee increases this

[^2]figure by only 2.4 percent, indicating a relatively modest impact on auto use. This tends to significantly decrease the potential for a reduction in auto use. ${ }^{4}$

- Another consideration is that the large majority of visitors patronizing the Stateline casinos also take advantage of other Tahoe attractions (such as sightseeing, day cruises or hiking/biking) as part of their stay. This tends to reduce the potential for other gaming centers to attract Tahoe visitors simply because of the implementation of paid parking. This also tends to decrease the impact of paid parking on auto use.
- Many Tahoe visitors live in larger urban areas where paid parking at activity centers is the norm. This is confirmed in the Bay to Tahoe Basin Recreation and Tourism Travel Impact Study (EI Dorado County Transportation Commission, 2014), which indicates that a substantial number of Tahoe visitors come from Sacramento and the greater San Francisco Bay Area. This likely decreases the sensitivity of out-of-town visitors to paid parking.
- The South Tahoe Airporter provides a schedule of 10 runs per day between the Casino Core and Reno-Tahoe International Airport, providing a viable option to the private automobile for overnight guests arriving in Reno. There is also a single daily round-trip connecting Stateline with Sacramento. The availability of these services tends to increase the potential for paid parking to reduce auto trips.

Note that once a visitor has paid the parking fee for on their arrival at the lodging property, no additional fees for further use of their vehicle while in the area would be charged. As a result, this small reduction also applies to local trips made by visitors staying at the Stateline casino properties for other trips. Given these factors, a 1 percent reduction in auto trips is appropriate for the regional access trip by overnight visitors lodged in the casino core. A reasonable estimate is that 40 percent of this 1 percent reduction would come from visitor groups arriving in fewer vehicles (ridesharing), 35 percent from increase airport shuttle or Amtrak Thruway use, and 25 percent from existing visitors choosing not to make the trip.

## Customer Trips Generated by Overnight Visitors Staying Outside the Casino Core or Local Residents

Another proportion of customer trips to/from the Stateline gaming properties consist of visitors lodging in the Tahoe Region outside the Stateline area or local residents making trips to/from the four casinos for gaming, dining, shopping and other forms of entertainment. The local factors to be considered for this group are as follows:

- One potential shift to avoid paying a parking fee is to choose another destination that fulfills the desired trip purpose. The availability of alternative gaming options is therefore important, as persons choosing to drive to another gaming property would not reflect a reduction in VMT. Considering the region as a whole, the Crystal Bay/Incline Village properties on the North Shore are an option. However, the long travel time/costs of substituting a Crystal Bay/Incline Village gaming visit for a Stateline gaming visit indicates that few Stateline patrons would shift to North Shore casinos. Similarly, few Stateline casino patrons would be expected to shift to casinos outside the Tahoe Basin (such as Casino Fandango in Carson City), given the additional travel

[^3]time and cost of fuel. In addition, the limited lodging options in areas along the West Shore and East Shore that have relatively similar travel distances to the South Shore and North Shore casino areas also reduces the proportion of gaming customers that could be expected to substitute a North Shore casino visit for a South Shore casino visit. Within the South Shore, the Stateline paid parking properties reflect a large proportion of the gaming opportunities. Only the Lakeside Inn and Casino is a significant gaming opportunity that would not charge for parking under the proposed project. TRPA land use files indicates that Lakeside is only 2 percent of the total gaming capacity in the South Shore (based on the proportion of gaming employees). This indicates that some existing Stateline casino patrons would be expected to shift their gaming location, but that the large majority will not. This factor would tend to increase the modal shift associated with paid parking.

- The number of free, legal parking spaces within a reasonable walk distance of the paid parking area for use by casino core motorists was estimated. TRPA staff conducted a walkshed analysis using a $1 / 4$ mile and $1 / 2$ mile network and buffer. As shown in Table 3.5-5, counts conducted over two busy summer days in 2017 augmented by counts conducted in June of 2019 indicates that there are an average of 494 parking spaces available within a half-mile walk distance of the paid parking area for use by casino core motorists. It can be expected that, absent any active parking control program, these spaces would be used by motorists shifting from the casino properties due to paid parking. Absent any future changes in parking control programs, visitor motorists will use these spaces during peak times. Given the overall existing parking activity at the casino properties (approximately 3,882 vehicles, based on LSC counts conducted on August 11 and 12, 2017), this is a relatively small proportion ( 13 percent) of overall travel impacted by the paid parking program. This factor would tend to decrease the impact of paid parking, within the limitation of available offsite parking.
- Another shift in travel patterns resulting from the implementation of paid parking is a shift in travel mode - so long as attractive alternative modes are available. To better identify the potential for mode shifts, TRPA TransCAD model input data regarding the number of lodging units in each Transportation Analysis Zone (TAZ) was analyzed, yielding the following proportions:
- Of all lodging units in the South Shore area excluding the Casino Core, 4 percent are within a 10 minute (half-mile) walk distance of the Casino Core.
- Of all lodging units in the South Shore area excluding the Casino Core, 32 percent are within a comfortable ( 3 mile) bicycling/scooter distance of the Casino Core, excluding areas in the upper portion of Kingsbury.
- Of all lodging units in the South Shore area excluding the Casino Core, 47 percent are within the service area of TTD Routes 22,50 and 55.
- Of all lodging units in the South Shore area excluding the Casino Core, 23 percent are within the proposed microtransit service area.

| TABLE 3.5-5: Tahoe South Events Center - Existing Free Lega Parking Availability Within a 10-Minute Walk Distance <br> Parking Area ${ }^{1}$ |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Description | On- Street | Douglas <br> County Pkg <br> Garage \& Lots | Stateline <br> Medical Center Lot | Total |
| Parking Supply ${ }^{2}$ | 349 | 246 | 98 | 693 |
| Weekday Evening |  |  |  |  |
| Peak Parking Count | 133 | 56 | 29 | 218 |
| Parking Utilization | 38\% | 23\% | 30\% | 31\% |
| Free Available Legal Spaces | 216 | 190 | 69 | 475 |
| Weekend |  |  |  |  |
| Peak Parking Count | 116 | 35 | 29 | 180 |
| Parking Utilization | 33\% | 14\% | 30\% | 26\% |
| Free Available Legal Spaces | 233 | 211 | 69 | 513 |
| Average Free Available Legal Spaces | 225 | 201 | 69 | 494 |
| Note 1: On-street parking counts conducted Friday August 11, 2017 and Saturday August 12, 2017. County and medical center lots counted Friday June 14, 2019 from 4 PM to 6 PM. <br> Note 2: Parking supply includes spaces within a $1 / 2$-mile walking distance from the Event Center (Montbleu) site. |  |  |  |  |
|  |  |  |  |  |
| Source: LSC Transportation Consultants, Inc. |  | VMT Im | act of Paid Pa | Statelin |

The limited proportions of total visitor lodging units in the various transportation mode service areas tends to decrease the auto reduction impact of paid parking.

With two factors tending to decrease the auto mode shift versus one tending to increase the shift, overall a modest reduction from the base value of 30 percent is expected.

The specific reduction factor can be defined based upon a mode shift analysis, applying the following assumptions:

- The additional cost of driving a private auto to the Casino Core would tend to encourage more use of TNCs and cabs. 5 percent of the mode shift is assumed to consist of increased TNC/cab trips. Each group arriving or departing the Casino Core via TNC/taxi is assumed to generate 2 one-way vehicle trips ( 1 entering and 1 exiting). As such, the shift from private auto mode to TNC/taxi generates a net increase in vehicle trips (because an arrival or departure via private auto only generates 1 one-way vehicle trip).
- $\quad 3550$ percent of the guests lodging in the microtransit service area would shift to the microtransit service. Factored by the proportion staying or living in the area and multiplying by existing vehicle-trips, 36 percent of the vehicle-trips eliminated by paid parking would shift to microtransit.
- 10 percent of the casino guests staying/living in the TTD local route (Routes 50,55 and 22) service area would shift to the TTD services, generating 20 percent of the total shift in 1-way vehicle-trips.
- Visitors arriving in the Tahoe region in more than one car as well as local resident customers in the Casino Core would have an encouragement to squeeze into fewer vehicles for the trip to the Casino Core. Ten percent of the trip reduction is assumed to consist of increased ridesharing.
- 10 percent of Casino Core customers staying/living in South Lake Tahoe east of Ski Run Boulevard and in the lower Kingsbury area would shift from driving to walking. As this is a small proportion of overall customers, this yields only $\underline{4 z}$ percent of the reduction in total auto use.
- 5 percent of customers staying or living within a convenient bicycle/scooter area (from the Bijou/Al Tahoe area to Round Hill, but excluding upper Kingsbury due to the grades) would shift from driving to traveling via bicycle or scooter. This generates 7 percent of the mode shift.
- 20 percent of the reduction in auto use is assumed to be a result of persons choosing not to make a trip to the Casino Core due to the parking fee. This is likely to largely consist of Tahoe visitors that currently stop at the Casino Core as a secondary purpose of their trip, or who choose to shop or dine elsewhere.

In total, this analysis of mode shifts supports a 24 percent reduction in existing vehicle-trips made by Casino Core customers staying or living in South Shore exclusive of the Casino Core properties, as shown in Table 3.5-6.

Multiplying the auto trip shift to the TTD transit mode by an average auto occupancy of 2.5 visitors per auto vehicle-trip yields an increase of 568 daily TTD transit riders, while a similar factoring of the microtransit auto shift yields a microtransit ridership increase of 1,063 per day. The comparison of total ridership to capacity on these transit systems is discussed below.

## Day Visitor Trips

Local factors considered for day visitors to the Stateline area (those visiting Stateline as part of a visit to the Tahoe region that does not include an overnight stay) are as follows:

- The Lake Tahoe Visitors Authority's VisaVue data indicates that the average South Shore visitor from the Sacramento region (a prime generator of day visitors) spends an average of $\$ 38$ per charge at restaurants. Assuming the travel group makes two restaurant meals over the course of the day trip and including 210 miles of travel at the current IRS rate of $\$ 0.58$ per mile (including depreciation), a group making a day trip to Tahoe spends on the order of \$200. A $\$ 20$ parking


## Table 3.5-6

| Analysis of Mode Shift of Existing Casino Core Peak Summer Day Vehicle-Trips Resulting From Paid Parking |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Overnight Visitor Lodged in Casino Core | Overnight Visitor Lodged Elsewhere or Local Guest | Day Visitor Guest | Total |
| Total Existing 1-Way Vehicle-Trips (Excludes Service Trips) | 15,730 | 4,731 | 9,630 | 30,091 |
| \% Impact of Paid Parking | 1\% | 24\% | 20\% |  |
| Total 1-Way Vehicle-Trips Eliminated by Paid Parking | 157 | 1,136 | 1,927 | 3,220 |
| Proportion of Total Mode Shift |  |  |  |  |
| TTD Transit | 0\% | 20\% | 0\% |  |
| Microtransit | 0\% | 34\% | 2\% |  |
| Airport Shuttle/Intercity Transit | 35\% | 0\% | 0\% |  |
| Ridesharing | 40\% | 10\% | 5\% |  |
| TNC/Taxi | 0\% | 5\% | 0\% |  |
| Walking | 0\% | 4\% | 2\% |  |
| Bicycling/Scooters/Other Mobility Devices | 0\% | 7\% | 2\% |  |
| Trip Not Made | 25\% | 20\% | 89\% |  |
| Total | 100\% | - 100\% | 100\% |  |
| Change in Existing 1-Way Auto Daily Vehicle-Trips |  |  |  |  |
| TTD Transit | 0 | -227 | 0 |  |
| Microtransit | 0 | -386 | -39 |  |
| Airport Shuttle/Intercity Transit | -55 | 0 | 0 |  |
| Ridesharing | -63 | -114 | -96 |  |
| TNC/Taxi ${ }^{1}$ | 0 | $\cdots 57$ | F 0 |  |
| Walking | 0 | -45 | -39 |  |
| Bicycling/Scooters/Other Mobility Devices | 0 | -80 | -39 |  |
| Trip Not Made | -39 | -227 | -1,714 |  |
| Total | -157 | -1,022 | -1,927 |  |
| Remaining Trips (Including Those Made to Nearby Free Parking) | 15,573 | 3,709 | 7,703 |  |
| Analysis of Transit Ridership and Capacity |  |  |  |  |
| Average Travel Group Size | 2.5 | 2.5 | 2.5 |  |
| Comparison With TTD Transit Capacity |  |  |  |  |
| TTD Transit Available Capacity |  |  |  | 2,720 |
| Change in Person-Trips | 0 | -568 | 0 | -568 |
| \% of Available Capacity Used |  |  |  | 21\% |
| Comparison with Microtransit Capacity |  |  |  |  |
| Microtransit Available Capacity (Person-Trips) |  |  |  | 2,160 |
| Change in Person-Trips | 0 | -965 | -98 | -1,063 |
| \% of Available Capacity Used |  |  |  | 49\% |
| Note 1: Trips shifting to TNC/Taxi don't reduce vehicle trips. Rather, each trip made via TNC/Taxi is assumed to generate 2 vehicle trips (to account for the previous stop and next stop). |  |  |  |  |
| Source: LSC Transportation Consultants, Inc. |  |  | MT Impact of Pai | Parking.x |

fee is therefore roughly a 10 percent increase in the total cost of a day trip. This tends to decrease the impact of paid parking on auto use.

- The Lake Tahoe Visitors Authority Visitor Profile Study 2015/16 indicates that most visitors participate in more than one activity, combining a gaming activity with other activities such as
sightseeing ${ }^{5}$. A common travel pattern for summer day visitors is instead to visit Tahoe primarily for the scenery and beaches, with a stop at a Stateline casino as an added secondary activity. For these types of trips, the additional cost of the secondary stop in the Casino Core is low. As an example, a group visiting Camp Richardson for the day from Sacramento that chooses to make a secondary stop at the Casino Core (and that would make two restaurant stops in either case) currently adds only the cost of the additional 10 miles round trips to/from the $Y$, equal to only $\$ 6.00$ in total additional costs. A $\$ 20$ parking charge is therefore a very substantial increase in the costs for this secondary trip decision, which tends to increase the impact of paid parking on auto use.
- As discussed above regarding other traveler types, the availability of free parking within a 10minute walk of the paid parking area would tend to decrease the auto reduction benefits of paid parking, within the limits of the available number of spaces.

With two factors decreasing the impact and one increasing the impact, the overall results of this evaluation of local factors on this traveler type indicates a reduction from the generic value of 30 percent to a value appropriate for the study area of 20 percent. The mode shifts made by this travel category are estimated as follows:

- Someday visitor travel groups coming in more than one vehicle will choose to use fewer vehicles. Five (5) percent of the 20 percent reduction (or 1 percent of total vehicle-trips) are assumed to be as a result of ridesharing.
- A small proportion of day visitors coming to Tahoe primarily for other reasons (such as visiting Nevada Beach or Ski Run Marina) will find themselves in a local alternative mode area. Two (2) percent each are assumed for day visitors choosing to leave their vehicle at their primary destination and walking, cycling or using the micro shuttle for their trip to the Casino Core.
- The remainder (89 percent of the 20 percent) are assumed to be existing day visitor that choose to not visit the Casino Core. The large proportion of these are expected to be day visitors with a primary trip purpose other than visiting the Casino Core, such as outdoor recreationalists that shift to another dining or shopping opportunity.


## Capacity of Transit Services to Accommodate the Mode Shift Associated with Paid Parking

An important "check" on the mode shift analysis is whether the existing TTD and proposed microtransit systems have adequate capacity to accommodate the new passengers shifting from the auto mode. This analysis is shown in the bottom portion of Table 3.5-6. For each of the traveler categories, the reduction in daily auto vehicle-trips shifting to the transit mode is multiplied by the appropriate average vehicle occupancy to identify the associated increase in daily transit ridership. Summing over the four traveler categories yields the total increase in transit ridership generated by paid parking.

[^4]For the TTD local routes, the increase in ridership totals 568 daily passenger-trips. As discussed above, the available capacity of the local TTD services, considering total capacity and existing ridership, is 2,720 one-way passenger-trips to or from the Casino Core per day. This indicates that 21 percent of the available capacity would be filled by the new passengers, leaving more than adequate excess capacity.

The capacity of the proposed microtransit, as analyzed below, is 2,160240 person-trips to and from the Casino Core. Compared with the total ridership generated by the paid parking of $\underline{9651}, 121, \underline{4950}$ percent of the daily capacity of this service would be utilized by the shift in existing traveler travel mode. Again, the available capacity is adequate to support the mode shifts.

## Summary of Impact on Visitor/Guest Trips

The overall reduction of visitor/guest vehicle-trips associated with paid parking is dependent on the proportion of trips associated with the categories discussed above. As shown in Table 3.5-7, this is calculated as follows:

- The PM peak-hour trip generation of MontBleu was identified, based upon counts conducted in August $201 \underline{7} 8$ for the TSEC project. Note that full counts at all driveways is not available for other Stateline properties. A total of 486 one-way vehicle-trips were counted.
- The peak-hour factor was multiplied by a factor of 14.0 to estimate total daily MontBleu vehicletrips. As standard sources for trip generation (such as Institute of Transportation Engineers data) is not available for both peak-hour and daily trip generation, this figure is based upon the average ratios identified in the Boulder Bay EIR/EIS (14.9) as well as a detailed study of Reno casinos presented in Hotel/Casino Trip Generation Study: Reno, Nevada by Barton-Aschman Associates, Inc. (13.1). The resulting estimate of daily vehicle-trips is 6,804.
- Daily vehicle-trips for the other three properties was estimated based upon the relative number of hotel rooms. In total, the four properties are estimated to generate 34,828 one-way daily vehicle-trips.
- The Reno Casino Trip Generation Study also identified the proportion of trips generated by employees at 11.3 percent, by service trips (such as food delivery and refuse trucks, and maintenance vehicles) at 2.3 percent and by visitors/guests at 86.4 percent. Multiplying the total daily vehicle-trips by this latter proportion, visitors/guests generate 30,091 one-way vehicle-trips per day.
- The trips generated by guests staying in the casino hotels can be estimated by applying the standard non-casino hotel trip rate ( 8.36 one-way vehicle-trips per day per room divided by a $82 \%$ occupancy rate to result in 10.20 vehicle-trips per occupied room ${ }^{6}$ ) times the 86.4 percent that are guests times the total number of hotel rooms $(2,242)$ and factored by 0.80 to reflect a
${ }^{6}$ While ITE Trip Generation provides a rate for occupied hotels rooms, this figure is the result of only two studies with large differences in the observed rate ( 8.10 and 17.44) and is thus not a reliable rate. Using the per-room rate (with six data points and an R-squared value of 0.92 ) factored by the reported 82 percent occupancy rate results in a more valid value.

TABLE 3.5-7: Analysis of Trip Generation Impacts of Paid Parking on Existing Casino Trips

| Property | PM Peak-Hour Total VehicleTrips | Daily Total Vehicle-Trips | Hotel <br> Rooms | Proportion of Daily Vehicle-Trips by Type |  | Daily VehicleTrips by Type | \% Impact of Paid Parking | Change in Daily Vehicle-Trips from Paid Parking |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MontBleu | 486 | 6,804 | 438 | Visitor/Guest | 86.4\% | 5,879 | -11\% | -629 |
|  |  |  |  | Employee | 11.3\% | 769 | 0\% | 0 |
|  |  |  |  | Service | 2.3\% | 156 | 0\% | 0 |
|  |  |  |  | Total |  |  |  | -629 |
| Hard Rock |  | 8,373 | 539 | Visitor/Guest | 86.4\% | 7,234 | -11\% | -774 |
|  |  |  |  | Employee | 11.3\% | 946 | 0\% | 0 |
|  |  |  |  | Service | 2.3\% | 193 | 0\% | 0 |
|  |  |  |  | Total |  |  |  | -774 |
| Harveys |  | 11,495 | 740 | Visitor/Guest | 86.4\% | 9,932 | -11\% | -1,063 |
|  |  |  |  | Employee | 11.3\% | 1,299 | 0\% | 0 |
|  |  |  |  | Service | 2.3\% | 264 | 0\% | 0 |
|  |  |  |  | Total |  |  |  | -1,063 |
| Harrah's |  | 8,155 | 525 | Visitor/Guest | 86.4\% | 7,046 | -11\% | -754 |
|  |  |  |  | Employee | 11.3\% | 922 | 0\% | 0 |
|  |  |  |  | Service | 2.3\% | 188 | 0\% | 0 |
|  |  |  |  | Total |  |  |  | -754 |
| Total |  | 34,827 | 2,242 | Visitor/Guest |  | 30,091 |  | -3,220 |
|  |  |  |  | Employee |  | 3,936 |  | 0 |
|  |  |  |  | Service |  | 801 |  | 0 |
|  |  |  |  | Total |  | 34,828 | -9\% | -3,220 |
|  |  |  |  | Subtotal by Visitor/Guest Type |  |  |  |  |
|  |  |  |  | Overnight Visitor - Lodged In Casino Core (1) |  |  |  | -157 |
|  |  |  |  | Overnight Visitor - Lodged Elsewhere or Local |  |  |  | -1,136 |
|  |  |  |  | Day Visitor |  |  |  | -1,927 |
|  |  |  |  |  |  |  |  | -3,220 |

Note 1: Considering both the regional access trip to the Tahoe Region as well as local trips made within the Region.
Source: LSC Transportation Consultants, Inc.

20 percent non-auto travel mode proportion for Stateline hotel guests. This latter figure is based on an analysis of 133 surveys conducted throughout the Tahoe Region in the summers of 2014 and 2018 by TRPA staff, selected for overnight guests that indicated their trip origin within the Tahoe Region was one of the four Stateline hotels. Dividing the resulting 15,730 trips by the total visitor/guest trips yields a proportion equal to 52 percent of all visitor/guest trips, as shown in Table 3.5-8.

- The proportion of visitor/guest trips that are day visitors is assumed to be 32 percent (or 9,630 trips per day), consistent with the regional summer average identified in the Lake Tahoe Visitors Authority Visitor Profile Study 2015/16.
- The remaining 16 percent of visitor/guest trips ( $30,091-15,730-9,630=4,731$ vehicle-trips) consist of either visitors lodging elsewhere in the Tahoe region or local residents. ${ }^{7}$

[^5]| TABLE 3.5-8: Analysis of Average Visitor Paid Parking Impact |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Visitor Type | \% Impact of Paid Parking | Estimated Daily Vehicle-Trips | Proportion of All Visitor Vehicle-Trips | Weighted Average |
| Overnight Visitor - Lodged In Casino Core (1) | 1.0\% | 15,730 | 52\% |  |
| Overnight Visitor - Lodged Elsewhere or Local | 24.0\% | 4,731 | 16\% |  |
| Day Visitor | 20.0\% | 9,630 | 32\% |  |
| Total |  | 30,091 | 100\% | 10.7\% |

Note 1: Considering both the regional access trip to the Tahoe Region as well as local trips made within the Region.

Source: LSC Transportation Consultants, Inc.

Factoring the paid parking impacts by these proportions yields an overall reduction of 11 percent of visitor/guest vehicle-trips. This reduction is applied to both the existing visitor trips and the visitor trips made to/from the proposed TSEC.

Total Impact of Paid Parking on Existing Vehicle-Trip Generation
Table 3.5-7 presents the total impacts of paid parking on existing daily trip generation, applying the proportions defined above to the trip generation of the four major properties and the area as a whole. As shown, paid parking is estimated to eliminate 3,220 existing one-way vehicle-trips in the casino core per busy summer day. Of this total, 1,927 (or 60 percent) is reduction in day visitor trips, 157 ( 5 percent) by overnight visitors lodged in the casino core and the remaining 1,136 are visitors lodged elsewhere or local resident guest trips.

## Reductions for Microtransit Service

The description of the proposed action (Section 2.4) indicates that a microtransit summershuttle program would be funded by the TDVA as part of the project, with the following parameters:

- Up tofourMedium to large sized vehicles would be used to provide on-request service within a core service area extending from the Casino Core on the northeast to Al Tahoe Boulevard and the Harrison Avenue area on the southwest (a map of the service area is included in Section 2.4). A general route would be followed between the Round Hill, NV area on the north and theBijou Center, CA area on the west, including a one-wayloop around Pioneer Trail, Ski Run Boulevard and U.S. 50 . Keystops would be served on a schedule, and the vehicles would deviate up to a half-mile to-Sservice requests would be received through an appor-by phone and would provide up to 15 minute headways (wait times)., or on request to the drive.
- Initially, sService would be provided from approximately June 15th through September 30 15th (encompassingfor the peak summer and winter periods (defined in Section 2.4)t, from 710 AM until $9 Z$ PAM on Mondays through Fridays, and from 9 AM to $9[$ PN] $]-10$ PM on Saturdays and Sundaysand holidays, and from 10 AM until 10 PM on other days (encompassing the peak traffic periodt. When major Event CenterTSEC events end after 109 PM, the service hours would be extended to serve departing attendees. At year 6 of TSEC operations, microtransit service would operate year-round.
- Based on the concentration of lodging rooms close to Stateline, two of the four vehicles would typically serve relatively short trips (no further west than Stateline), making round-trips every 20 to 30 minutes (depending on traffic delays). The other wehicles would servelonger trips, providing round trips every 30 to 40 minutes) Service would be provided with a minimum of two vehicles at a time. In off-peak times, this would result in service every 30 minutes, while in peak traffic times delays would increase travel times to approximately 45 minutes.
- No fares would be charged.
- The service would be operated using enough a-vehicles and with 920 to 25 passengerproper capacity to meet the headway requirements.

Over the course of a 16-hour operating day and assuming an estimated 6 hours of traffic congestion increasing travel times, this service would have the capacity to serve at least 1,080120 passenger roundtrips to the Stateline area ( 12056 arriving trips X $\underline{9} 20$ seats per trip), or $2,160 z 40$ one-way passengertrips. This capacity calculation only considers those routes directly serving the project site $(50,55$ and z2).

The potential daily ridership on this service can be estimated based on the current productivity (passengers per vehicle-hour) of existing services adjusted to reflect the specific characteristics of the proposed service, as follows:

- The peak summer month (July)annual productivity of the TTD transit routes serving the microtransitSteline area (Rutes 22,50 and 553) in 2019Fiscal Year 2017 -18 was 18.719.2 passenger-trips per vehicle-hour, per data provided at the TRPA monitoring page (https://monitoring.laketahoeinfo.org/Transit). Eurrent capacity is based on the existing schedules (per the posted schedules and TTD Transit Service Changes 2019 Plan Fact Sheet available a tahoetransportation.org).
- Current peak summer (July) ridership data is available at https://monitoring.laketahoeinfoorg/Transit. Per monthly data at the same site, the ratio of peak summer monthly ridership to average annual ridership over the last three years was 1.22. This indicates an averageproductivity in the peak summer month of 23.4 passenger-trips per vehicle-hour. This analysiswas conducted on July 2018 ridership data. before July 2019 data was available. This data is now available, indicating July 2019 ridership on the three routes serving the site has dropped by 419 boardings per day. This would provide additional capacity for new ridership.
- The additional transit service would effectively double the frequency of service number of buses operating-within the microtransit shuttle service area and thus the frequency of service. The

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elasticity ${ }^{8}$ factors identified in Forecasting Incremental Ridership Impacts from Bus Route Service Changes (National Cooperative Transit Research and Development Program, 1991) indicate that this improvement in frequency would result in a 60 percent increase in ridership.

- The provision of transit service at no fare would also increase ridership. Transit services that have shifted from fare systems to free-fare have generally seen ridership increases on the order of 50 percent:
- The Corvallis Transit System in Oregon saw a 38 percent increase in ridership in the first year after the elimination of fares in 2011.
- The Mountain Line system in Missoula, Montana eliminated fares in January 2015, which generated a 43 percent increase in ridership over the first year.
- Glenwood Springs, Colorado saw a 125 percent increase in ridership after a few months.
- Asheville, North Carolina conducted a demonstration three-month fare-free program in 2006 that resulted in a 58 percent increase in ridership.
- The Truckee TART fixed route service has seen a 65 percent increase in ridership between March-May 2018 and March-May 2019, after the elimination of fares in September 2018.

[^6]- In addition, the downtown shuttle system in Santa Barbara imposed a 25 -cent fare on their previously-fare-free system in the late 1990's, which resulted in a 45 percent loss in ridership.
- Given the additional convenience of free-fare service to residents and visitors in Truckee, a 50 percent ridership increase is reasonable.
- Ridership on the microtransit program would also be increased by the provision of paid parking requirements, as discussed above. However, to avoid "double counting" this benefit, no additional increase is assumed.

Multiplying the existing 18.723 .4 passenger-trips per hour productivity by 0.60 to reflect the marginal net productivity of the new service and increasing by 50 percent to reflect free fares, the productivity of the microtransit program is estimated to be 16.921 .1 passenger-trips per vehicle-hour. Multiplied by 32 vehicle-hours of transit service per day yields a ridership estimate on an average day in the peak summer month of 944675 one-way passenger-trips per day. Based on TTD passenger surveys and the area to be served by the microtransit program, over the course of a day 70 percent of microtransit riders are estimated to be visitors/guests and 30 percent are employees. Factored by average vehicle occupancies of 2.5 and 1.3, respectively, the average weighted vehicle occupancy for trips eliminated by the microtransit program is 2.1. Dividing the ridership by this average vehicle occupancy yields the daily trip-reduction associated with the microtransit program of approximately 450321 one-way vehicle-trips.

The proportion of total daily microtransit passengers that are event attendees will be limited by the capacity of the microtransit program as well as the limited period when attendees are traveling to and from the event. Over the course of a day, an estimated 5 percent of microtransit riders would consist of event attendees. This equates to a reduction of 17 daily one-way vehicle trips associated with event attendees, or a 1 percent reduction in event attendee vehicle trips due to the proposed microtransit service.

For purposes of evaluating traffic impacts, it is also necessary to estimate the microtransit reduction during the PM peak hour for the two event scenarios: (1) when an event begins and (2) when an event ends. Multiplying the 16.923 .4 average peak summer microtransit passengers per vehicle-hour by $\underline{4 z}$ transit vehicles yields approximately 6846.8 inbound or outbound passengers per hour. Factoring this figure by the 60 percent of passengers traveling in the peak direction yields 4128 passengers per hour in the peak direction. Subtracting $41 \not 28$ passengers from the inbound capacity of the microtransit service ( $\mathbf{6} 80$ passengers per hour) yields a capacity of $\underline{1952}$ passengers per hour available for the event. This equates to approximately $\underline{2} 4$ percent of the 1,276 total persons entering the site during the PM peak hour before an event begins. This is much lower than what would typically be expected from a free transit service where an attendee would otherwise pay a $\$ 20$ charge for parking, indicating that this reduction will be limited by the proposed capacity of the microtransit service. Dividing by the average vehicle occupancy rate of 2.77 attendees per vehicle yields a reduction in PM peak-hour vehicle trips of approximately 1 percent. Applying the same methodology to persons leaving the site when an event ends in the PM peak hour also yields a 1 percent reduction in vehicle trips.

## Table 3.5-9

| Analysis of Reductions for Non-Auto Trips |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Description | Base Reduction for Non-Auto Modes | Percent Reduction in Vehicle Trips Due to Paid Parking | Percent Reduction in Vehicle Trips Due to Microtransit |  | Total Reduction Due to Microtransit \& Paid Parking |  | Overall Reduction for Non-Auto Trips (Base \& Microtransit \& Pd Pkg) |  |
|  |  |  | Daily | PM | Daily | PM | Daily | PM |
| EXISTING TRIPS IN CASINO CORE <br> Total Existing Trips | n/a | 9\% | 1\% | 1\% | 10\% | 10\% | n/a | n/a |
| PROPOSED EVENT CENTER TRIPS |  |  |  |  |  |  |  |  |
| Event Attendees | 18\% | 22\% | 2\% | 1\% | 24\% | 23\% | 38\% | 37\% |
| Employees | 45\% | 0\% | 3\% | 0\% | 3\% | 0\% | 47\% | 45\% |
| Source: LSC Transportation Consultants, Inc. |  |  |  |  |  |  |  |  |

## Total Reductions for Non-Auto Modes

An analysis of the total reductions for non-auto travel is summarized in Table 3.5-9. The base reduction for non-auto modes of event attendees and employee trips (without microtransit and paid parking), and the paid parking reductions are shown in the left-hand columns of the table. The microtransit reductions are shown in the middle columns. Adding the microtransit reduction to the paid parking reduction ${ }^{9}$ yields a combined reduction in event attendee daily vehicle trips of 23 percent and a reduction in employee daily vehicle trips of 2 percent. During the PM peak hour, the reduction in vehicle trips due to microtransit and paid parking would be 23 percent for attendee vehicle trips and zero for employee vehicle trips.

As shown in the far right columns in the table, the overall reduction for event attendees traveling to/from the proposed event venue via non-auto modes, including the base reduction, microtransit and paid parking reductions, is $3 \underline{8} 7$ percent over the course of the day and 37 percent during the PM peak hour (regardless of whether the event starts or ends in the peak hour). The overall reduction for employees traveling to/from the venue via non-auto modes is $4 \underline{7} 6$ percent over the course of the day and 45 percent during the PM peak hour.

## IMPACT ON TRIP GENERATION AT CASINO ACCESS POINTS

The trip generation analysis for the proposed uses over the course of the summer "design day" (including a 2,500-attendee event) is presented in Table 3.5-10. Applying the reductions for non-auto trips to the number of persons, multiplying by the number of one-way person-trips per day and dividing by the average vehicle occupancy yields the number of daily one-way vehicle trips made to/from the event parking areas (casino access points). As shown in the middle column of the table, a total of 1,30z2 daily one-way vehicle trips would be generated at the casino access points as a result of the proposed

[^7]TABLE 3.5-10

event venue. If the event starts in the PM peak hour, approximately 342 one-way vehicle trips ( 300 entering and 42 exiting) would be generated at the casino access points over the course of the hour. Similarly, if the event ends in the PM peak hour, approximately 456 one-way vehicle trips ( 42 entering and 414 exiting) would be generated at the casino access points over the course of the hour.
(Supplemental analysis for Alternative C can be found in Appendix F-5.)

In order to determine the "net impact" of the project on trips at the casino access points, the reduction in existing trips due to the proposed microtransit and paid parking program must be quantified. As previously shown in Table 3.5-7, approximately 3,220 existing daily one-way vehicle trips at the casino access points would be eliminated as a result of the paid parking program. To estimate the number of PM peak-hour trips that would be eliminated, it is first necessary to estimate the total existing PM peakhour trips at the casino access points. Multiplying the 486 PM peak-hour vehicle trips generated at the MontBleu access points by the ratio of total casino hotel rooms-to-MontBleu rooms (5.12) yields a total of 2,488 existing PM vehicle trips. Applying the 9 percent reduction for paid parking equates to a reduction of approximately 224 existing PM trips at the casino access points. This is summarized in Table 3.5-11.

Next, the reduction in existing vehicle trips as a result of the proposed microtransit service is considered. As mentioned above, the total daily trip-reduction associated with the microtransit program is approximately 450321 vehicle-trips. The PM peak-hour reduction in existing trips is 22 ( 46.8 "non-event" passengers per hour divided by the average vehicle occupancy rate of 2.1). Adding the paid parking and microtransit reductions yields a total reduction in existing trips at the casino access points of $3, \underline{67054 t}$ daily one-way vehicle trips and 246 PM peak-hour vehicle trips.

As shown in the lower portion of Table 3.5-10, subtracting the reductions in existing trips from the project-generated trips yields a net reduction of 2,368 daily one-way vehicle trips (DVTE) made to/from the casino access points. Compared to the existing 34,828 daily casino core trips, this reflects a reduction of about 7 percent. During the PM peak hour, the project would result in a net increase of 96 one-way trips to/from the casinos when an event starts in the PM peak hour. When an event ends in the PM peak hour, there would be a net increase of 210 trips.

## Trip Generation of a Maximum Concert Event

The trip generation of a maximum 6,000-attendee concert event is analyzed, based on the travel characteristics assumed for the summer design day. The maximum event is assumed to have 225 venue employees, and 12 full-time employees are assumed to report to the site over the course of the day. As shown in the middle column of Table 3.5-12, a total of 3,154 daily one-way vehicle trips would be generated at the casino access points as a result of the proposed event venue. If the event starts in the PM peak hour, approximately 829 one-way vehicle trips ( 727 entering and 102 exiting) would be generated at the casino access points over the course of the hour. Similarly, if the event ends in the PM peak hour, approximately 1,102 one-way vehicle trips (102 entering and 1,000 exiting) would be generated at the casino access points over the course of the hour.

Subtracting the existing trips eliminated as a result of the proposed microtransit and paid parking program from the project trips yields a net reduction of 516 daily trips at the casino access points. However, during the PM peak hour, the project would result in a net increase of 583 one-way trips to/from the casinos when an event starts in the PM peak hour. When an event ends in the PM peak hour, there would be a net increase of 856 trips.

## Table 3.5-11

## South Tahoe Event Center - Reduction in Existing Trip Generation

| Description | Reduction in Vehicle Trips Due to Paid Parking |  | Reduction in Vehicle Trips Due to Microtransit |  | Total Reduction in Vehicle Trips Due to Microtransit \& Paid Parking |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Daily | PM | Daily | PM | Daily | PM |
| Reduction in Existing Trips at Casino Access Points | -3,220 | -224 | -450 | -22 | -3,670 | -246 |

Source: LSC Transportation Consultants, Inc.
S Tahoe Event Center.xlsx

## Trip Assignment

First, the reductions in existing PM peak-hour intersection turning-movement volumes resulting from paid parking and microtransit (total reduction of 246 one-way vehicle trips, per Table 3.5-11) are estimated by applying the 9-percent reduction (as shown in Table 3.5-9) to the applicable turning movements and adjusting for the fact that some of the through traffic along U.S. 50 consists of regional through trips, rather than trips made to/from the casino driveways.

Next, the turning-movements generated by the proposed use are estimated by factoring the 'project net impact' volumes from the previously analyzed alternative (Alternative C) to reflect the reductions due to paid parking and microtransit. Consistent with the previously analyzed alternative, when the MontBleu lots are full, the remaining event attendees are assumed to park at other nearby properties, such as Harrah's, Dotty's, Hard Rock and Harvey's.

Adding the reductions in existing traffic to the traffic generated by the proposed use yields the 'project net impact' on PM peak-hour intersection volumes, which are illustrated in Figure 3.5-3. Adding these volumes to the existing traffic volumes without the project yields the 'existing with project' peak-hour traffic volumes illustrated in Figure 3.5-4.

## Trip Assignment With Loop Road

With implementation of the Loop Road, the trip assignment assumptions are estimated by factoring the volumes developed for the previously analyzed alternative. The resulting 'project net impact' on summer PM peak-hour intersection traffic volumes with the Loop Road is illustrated in Figure 3.5-5 and the 'existing with project with Loop Road' peak-hour traffic volumes are illustrated in Figure 3.5-6.

## Project Impact on Traffic Volumes

A comparison with the existing summer peak-hour volumes indicates that implementation of the proposed project would result in a change in total two-way peak-hour traffic volumes on nearby roadway segments as follows:

- Lake Parkway between U.S. 50 and MontBleu access - 15 percent increase
- Lake Parkway between MontBleu access and Heavenly Village Way - 14 percent increase
TABLE 3.5-12

| South TahoeDescription | Cent | - Tr | 0 Ge | eratio | of Maxim | m | once | $t E$ | ent |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Persons | Percent <br> Reduction for Non-Auto Trips |  | Average <br> Vehicle <br> Occupancy | Daily One-Way Vehicle Trips at Casino Access Points ${ }^{1,2,3}$ | Summer PM Peak Hour Trips at Casino Access Points ${ }^{2,3}$ |  |  |  |  |  |  |  |  |  |
|  |  |  |  | Event Starting in Peak Hour |  | Event Ending in Peak Hour |  |  |  |  |
|  |  | Daily | PM |  |  | \% IN | \% OUT | $\begin{gathered} \text { Trips } \\ \text { IN } \end{gathered}$ | Trips OUT | Total Trips | \% IN | \% OUT | Trips IN | $\begin{aligned} & \text { Trips } \\ & \text { OUT } \end{aligned}$ | Total Trips |
| MAXIMUM CONCERT EVENT |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Attendees | 6,000 | 38\% | 37\% |  | 2.77 | F 2,847 | 50\% | 6\% | 682 | 82 | 764 | 6\% | 70\% | 82 | 955 | 1037 |
| Venue Employees | 225 | 47\% | 45\% | 1.30 | 194 | 33\% | 6\% | 31 | 6 | 37 | 6\% | 33\% | 6 | 31 | 37 |
| Full-Time Employees | 12 | 47\% | 45\% | 1.30 | 13 | 15\% | 15\% | 1 | 1 | 2 | 15\% | 15\% | 1 | 1 | 2 |
| Delivery/Service | 50 | 0\% | 0\% | 1.00 | 100 | 25\% | 25\% | 13 | 13 | 26 | 25\% | 25\% | 13 | 13 | 26 |
| Total Proposed Venue | 6,287 |  |  |  | 3,154 |  |  | 727 | 102 | 829 |  |  | 102 | 1,000 | 1,102 |
| REDUCTION IN EXISTING TRIPS TO/FROM CASINO ACCESS POINTS |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Total Reduction in Existing Trips at Casino Access Points |  |  |  |  | -3,670 |  |  |  |  | -246 |  |  |  |  | -246 |
| PROJECT NET IMPACT ON TRIPS AT CASINO ACCESS POINTS |  |  |  |  | -516 |  |  |  |  | 583 |  |  |  |  | 856 |
| Note: Assumes same travel characteristics as summer design day analysis, including paid parking and microtransit. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Note 1: Assumes $1 / 3$ of full-time employees make a round-trip off-site during their shift. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Note 2: LTVA 2017 Summer Concert Surveys indicate $4 \%$ of attendees arrive to the venue via taxi/limo plus $2 \%$ arrive via drop-off. There figures are assumed to include those using a TNC such as Uber or Lyft. Based on this, a total of $6 \%$ of attendees and venue employees arriving via auto mode are assumed to be dropped-off/picked-up, generating 2 additional vehicle trips (as each drop-off or pick-up generates 2 one-way vehicle trips, one entering and one exiting). |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Note 3: Summer PM peak hour of a dja cent street traffic typically occurs between 3:30 a nd 5:30 PM. Source: LSC Transportation Consultants, Inc. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| S Tahoe Event Center Trip Gen.xlsx |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

- U.S. 50 between Lake Parkway and MontBleu access - 2 percent reduction
- U.S. 50 between MontBleu access and Stateline Avenue - 5 percent reduction

The project's impact on existing Average Daily Traffic (ADT) along Lake Parkway is estimated, and the results are shown in Table 3.5-13. Implementation of the proposed project would result in a reduction in existing ADT due to paid parking and microtransit, while the proposed event venue use would increase ADT. The project's 'net impact' on ADT along Lake Parkway between U.S. 50 and MontBleu is an increase of approximately 0.5 percent under existing summer conditions. However, the project would result in a net reduction in ADT of approximately 1.9 percent on Lake Parkway east of MontBleu.

| TABLE 3.5-13: ADT Impact on Lake Parkway - Proposed Project |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Average Daily Traffic Volume (ADT) |  |  |  |
| Roadway Segment | Existing Year Without Project | Project Net <br> Impact | Existing With Project | Percent Change |
| Lake Parkway between U.S. 50 and MontBleu <br> Lake Parkway, east of MontBleu | $\begin{aligned} & 12,340 \\ & 11,410 \end{aligned}$ | $\begin{gathered} 60 \\ -220 \end{gathered}$ | $\begin{aligned} & 12,400 \\ & 11,190 \end{aligned}$ | $\begin{gathered} 0.5 \% \\ -1.9 \% \end{gathered}$ |
| Source: LSC Transportation Consultants, Inc. |  |  |  |  |

## Project Impact on Existing Intersection Level of Service and Queuing

Both site driveways are proposed to provide separate left- and right-turn lanes for exiting traffic. The LOS at each study intersection was evaluated under 'existing year with project' conditions, assuming separate lanes on the site driveways. Appendix F-3 contains the LOS output. Table 3.5-14 presents the existing year summer PM peak-hour intersection LOS, with and without the proposed project. As shown, all study intersections would continue to operate at acceptable levels (LOS D or better) with the addition of traffic generated by the proposed project, except the following intersections:

- Lake Parkway/Eastern MontBleu Driveway - LOS F
- Lake Parkway/Heavenly Village Way - LOS F

The left-turn movement from the Eastern MontBleu Driveway is expected to operate at LOS F during the PM peak hour when an event starts or lets out. This LOS F is due to the northbound left turning vehicles searching for gaps in the flow of westbound through traffic.

- The Lake Parkway/Heavenly Village Way intersection would degrade to LOS F when an event lets out.
TABLE 3.5-14: Existing Year Intersection Level of Service with Project



## Intersection LOS with Loop Road

With implementation of the Loop Road and the proposed TSEC under existing year conditions, the Lake Parkway/Heavenly Village Way intersection would be signalized and would operate at LOS C with an event starting or ending during the peak hour. The intersection of Lake Parkway and the Eastern MontBleu Driveway would operate at a LOS F. All other study intersections would operate at an acceptable level.

## Intersection Queuing Analysis

Traffic queues at specific intersections that exceed the storage capacity of turn lanes, or that block turn movements at important nearby intersections or driveways, can cause operational problems beyond those identified in the LOS analysis. The 95th-percentile traffic queue length was reviewed at locations where queuing could potentially cause traffic problems, and no queuing concerns are identified under summer peak periods with the project.

## Summary

Implementation of the proposed project would cause the following study intersections to exceed the LOS threshold during busy summer periods of event-related traffic activity:

- Lake Parkway/MontBleu Driveway - LOS F
- Lake Parkway/Heavenly Village Way - LOS F (only when an event lets out)

With implementation of the Loop Road and the proposed TSEC project, only the following intersection would exceed the LOS threshold during busy summer periods of event-related traffic activity:

- Lake Parkway/MontBleu Driveway - LOS F

No intersection queuing concerns are identified.
Alternatives A and C would have the same LOS results as the Proposed Project, although the average vehicular delays would generally be longer. Under Alternative B, more traffic going to/from the event venue would use Lake Parkway than under the Proposed Project. However, the same intersections would be expected to exceed the LOS threshold as under the Proposed Project.

## Mitigation

## Intersection LOS

Traffic and parking management measures should be provided during peak periods of event-related traffic. The following traffic management measures are needed in order to provide acceptable intersection LOS:





- Lake Parkway/MontBleu Driveway intersection -
- Provide a central two-way left-turn lane (TWLTL) on Lake Parkway for left turns from MontBleu; or
- A Traffic Control Officer (TCO) should be provided.

This measure is needed during summer peak periods both when an event starts and lets out, with or without the Loop Road.

- Lake Parkway/Heavenly Village Way intersection - When an event lets out:
- Either a southbound right-turn lane (with at least 75 feet of storage length) should be provided on Lake Parkway; or
- TCO should be provided.

This measure is needed during summer peak periods without the Loop Road. No intersection LOS measures are needed at this location when an event starts. Furthermore, with the Loop Road, no LOS measures are needed at this intersection.

With implementation of parking management and the above intersection LOS measures on event days, an acceptable LOS would be provided at all study intersections.

Alternatives A and C have the same mitigation measures as the Proposed Project, except that the southbound right-turn lane at the Lake Parkway /Heavenly Village Way intersection would need to provide at least 100 feet of storage length. Alternative $B$ would have similar mitigation measures, although additional lane improvements and/or traffic control measures may be needed at the easternmost driveway on Lake Parkway.

Impact: Intersection LOS Under 'Future Cumulative Year With Project' Conditions - Proposed Project and Alternatives A, B and C: Intersection LOS under 'future year with project' conditions would exceed the LOS threshold at some study area intersections.

Analysis:

## Future Cumulative Traffic Volumes

To analyze cumulative impacts related to traffic and circulation, the future roadway configuration is described, cumulative traffic volumes are developed, and intersection LOS and queuing are evaluated. This information is used to analyze the cumulative impacts of the project and mitigation measures are provided.

## Roadway Configuration

With the exception of the U.S. 50/South Shore Community Revitalization Project (Loop Road Project), there are currently no other planned Nevada Department of Transportation (NDOT) or California Department of Transportation (Caltrans) construction projects that would affect the intersection operations or future traffic volumes within the vicinity of the project area. First, the potential impacts of
the TSEC Project are evaluated under future cumulative conditions assuming no changes to the existing roadway network. Next, the impacts of the proposed project are addressed under conditions with the Loop Road Project.

## Future Cumulative Traffic Volumes

Future long-term baseline traffic volumes without the proposed project are estimated using data from the TRPA's TransCAD model developed as a part of the TRPA's 2017 Regional Plan Update. TRPA staff provided output from the existing (2014) and future (2040) models. The TransCAD model output provides turning movement volume estimates for a 3-hour peak period, based upon projected land uses. For the purposes of this analysis, the volumes have been adjusted to reflect a 1-hour PM peak period, based upon a review of continuous hourly traffic count data on U.S. 50. Next, future model volumes were compared to existing model volumes to estimate the future "growth" in traffic volumes. This growth was added to the 'existing no project' design volumes to estimate 'future no project' volumes.

As the TRPA TransCAD model is a regional model, it is not refined to reflect the traffic generated on side streets in the casino core due to future development projects. In order to remain conservative (conservatively high traffic volumes) in this analysis, the traffic estimated to be generated by the following two approved development projects is added to the future cumulative volumes:

- Gondola Vista - 22 townhomes (under construction at the time of this study)
- Chateau/Project 3 - Trip generation based on 2007 approved uses, minus convention center

The Project 32007 approved uses are listed in Appendix F-6. The resulting "future no project" summer PM peak-hour traffic volumes are shown in Figure 3.5-7. Next, the 'future project net impact' and 'future with project' volumes are estimated with and without the Loop Road, by factoring the 'future with project' volumes from the previously analyzed alternative (Alternative C) to reflect the reductions due to paid parking and microtransit. The resulting future volumes are illustrated in Figures 3.5-8 through 3.5-11.

## Project Impact on Future Year Traffic Volumes

The project's impact on future cumulative ADT along Lake Parkway is estimated, and the results are shown in Table 3.5-15. Implementation of the proposed project would result in a net increase in ADT along Lake Parkway between U.S. 50 and MontBleu of about 1 percent under future cumulative summer conditions. A net reduction in ADT on Lake Parkway east of MontBleu of about 2 percent is expected.

## Project Impact on Future Intersection Level of Service

The LOS at each study intersection was evaluated under 'future year with project' conditions, using the same methodology as under existing year conditions. Appendix F-3 contains the LOS output. Table 3.516 presents the future year summer PM peak-hour intersection LOS, with and without the proposed project. As shown, all study intersections would continue to operate at acceptable levels with the addition of traffic generated by the proposed project, except the Lake Parkway/Eastern MontBleu Driveway intersection. The left-turn movement from the Eastern MontBleu Driveway is expected to operate at LOS F during the PM peak hour when an event lets out. Note that the Lake Parkway/Heavenly

Village Way intersection would operate at LOS E in the future with the project. According to the TRPA's LOS standards, LOS E may be acceptable during peak periods in urban areas, not to exceed 4 hours per day. Based on the NDOT hourly count station data, the $5^{\text {th }}$-highest hour traffic volumes along U.S. 50 between Lake Parkway and Kingsbury Grade on the design day equates to approximately 90 percent of that during the peak hour. If the peak-hour traffic volumes are reduced by 10 percent, the Lake Parkway/ Heavenly Village Way intersection would operate at an acceptable LOS D or better during the $5^{\text {th }}$-busiest hour. Therefore, it can be concluded that LOS E conditions would occur for not more than 4 hours on a typical busy summer day.

## Future Intersection LOS with Loop Road

With implementation of the Loop Road and the proposed TSEC under future year conditions, the New U.S. 50/Eastern MontBleu Driveway intersection would operate at LOS F, with or without the TSEC project. All other study intersections would operate at an acceptable level.

## Future Intersection Queuing Analysis

The 95th-percentile traffic queue lengths under future cumulative conditions were reviewed at locations where queuing could potentially cause traffic problems. The longest traffic queue occurring on the westbound approach to the U.S. 50/Lake Parkway intersection during the summer PM peak hour would be less than 680 feet (under future with project scenarios with and without Loop Road). As about 735 feet of length is provided in the westbound direction along Lake Parkway to accommodate this queue without interfering with operations at the Eastern MontBleu Driveway, no queuing concerns are identified at this location.

Additionally, the $95^{\text {th }}$-percentile traffic queues in the existing left-turn lanes along U.S. 50 and Lake Parkway at the site access points were reviewed. The existing southbound left-turn lane at the MontBleu Main Driveway on U.S. 50 is expected to accommodate the queue during summer peak periods with the project. Similarly, no queuing concerns are identified at the existing westbound leftturn lane on Lake Parkway at the Eastern Driveway intersection. As such, no queuing concerns are identified under future cumulative summer peak periods with the project.

## Summary

Under the 'future with project' scenario, the Lake Parkway/MontBleu Driveway intersection would exceed the LOS threshold during busy summer periods of event-related traffic activity. With implementation of the Loop Road, this intersection would exceed the LOS threshold during busy summer periods, regardless of whether the proposed TSEC project is implemented.

No intersection queuing concerns are identified.






| TABLE 3.5-15: Future ADT Impact on Lake Parkway - Proposed Project |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Average Daily Traffic Volume (ADT) |  |  |  |
| Roadway Segment | Future Year Without Project | Future Project Net Impact | Future With Project | Percent <br> Change |
| Lake Parkway between U.S. 50 and MontBleu <br> Lake Parkway, east of MontBleu | $\begin{aligned} & 12,200 \\ & 11,150 \end{aligned}$ | $\begin{gathered} 60 \\ -230 \end{gathered}$ | $\begin{aligned} & 12,260 \\ & 10,920 \end{aligned}$ | $\begin{gathered} 1 \% \\ -2 \% \end{gathered}$ |
| Source: LSC Transportation Consultants, Inc. |  |  |  |  |

## Alternatives A and C

Under Alternatives A and C, the following three intersections would exceed the LOS threshold during busy summer periods of event-related traffic activity:

- Lake Parkway/MontBleu Driveway
- Lake Parkway/Heavenly Village Way

With implementation of the Loop Road and the proposed TSEC project, the following two intersections would exceed the LOS threshold during busy summer periods of event-related traffic activity:

- Lake Parkway/MontBleu Driveway
- Lake Parkway/Heavenly Village Way (only when an event lets out)


## Alternative B

Under Alternative B, more traffic going to/from the event venue would use Lake Parkway than under the Proposed Project. The Lake Parkway/Eastern MontBleu Driveway intersection would not only exceed the LOS threshold when an event lets out during the peak hour but may also exceed the threshold when an event starts during the peak hour. Additionally, the Lake Parkway/Heavenly Village Way could potentially exceed the LOS threshold when an event lets out.

Note that with the Loop Road, the LOS at the MontBleu Driveway on New U.S. 50 exceeds the standards regardless of whether the proposed TSEC project is implemented.

## Mitigation

## Future Intersection LOS

Traffic and parking management measures should be provided during peak periods of event-related traffic. The following traffic management measures are needed in order to provide acceptable intersection LOS:

- Lake Parkway/MontBleu Driveway intersection -
- Provide a TWLTL on Lake Parkway for left turns from MontBleu; or
- A Traffic Control Officer (TCO) should be provided.

This measure is needed during summer peak periods when an event lets out. With the Loop Road, this measure is needed when an event starts or lets out under all future scenarios. Note that with the Loop Road, the LOS at the MontBleu Driveway on New US 50 exceeds the standards regardless of whether the proposed TSEC project is implemented. No mitigation is needed at the Lake Parkway/Heavenly Village Way intersection. With implementation of parking management and the above intersection LOS measures, an acceptable LOS would be provided at all study intersections.

## Alternatives A and C

Under Alternatives A and C, the mitigation measures are the same as the Proposed Project, with the following additions (without Loop Road):

- Lake Parkway/MontBleu Driveway intersection -
- The TWLTL on Lake Parkway would need to accommodate 2 cars $_{2}$ or
- A TCO would be needed not only when an event lets out, but also when one starts.
- Lake Parkway/Heavenly Village Way intersection - When an event lets out:
- Either a southbound right-turn lane (with at least 125 feet of storage length) should be provided on Lake Parkway; or
- Provide TCO.


## Alternative B

In comparison with Alternatives A and C, Alternative B may require additional mitigation measures for the study intersections along Lake Parkway.

Impact: Roadway LOS Under 'Existing Year With Project' Conditions - Proposed Project and Alternatives A, B and C. One study roadway segment along U.S. 50 would operate at LOS E for more than four hours per day under 'with project' conditions. This exceeds the applicable standard.

Analysis: Existing year roadway LOS is summarized in Table 3.5-17. As indicated in the table, the segment of U.S. 50 between Park Avenue and Pioneer Trail would degrade from an acceptable LOS E without the project to an unacceptable LOS E (LOS E for more than 4 hours per day) with implementation of the proposed project. This exceeds the applicable standard. $\qquad$
TABLE 3.5-16: Future Cumulative Intersection Level of Service with Project

| Intersection | Control | LOS Standard | Applies to | Worst Approach |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Future Without Project |  | Future With Project |  | Future With Project With Loop Rd |  |
|  |  |  |  | LOS | $\begin{gathered} \text { Delay } \\ \text { (sec/veh) } \end{gathered}$ | LOS | $\begin{aligned} & \text { Delay } \\ & \text { (sec/veh) } \end{aligned}$ | LOS | Delay sec/veh) |
| US 50/Kingsbury Grade | Signal | D/E | total intersection | C | 21.3 | Acceptable, per previous analysis. |  | Acceptable, per previous analysis. |  |
| US 50/Lake Parkway | Signal | D/E | total intersection | C | 30.2 |  |  |  |  |
|  | Roundabout | D/E | worst movement ${ }^{2}$ | $\mathrm{n} / \mathrm{a}$ | n/a | n/a | n/a | D | 46.1 |
| US 50/Montbleu Main Driveway | TWSC | E | worst movement | D | 29.4 | D $\quad 30.2$$\begin{gathered}\text { Acceptable, per previous } \\ \text { analysis. }\end{gathered}$ |  | C $\quad 16.5$Acceptable, per previous <br> analysis. |  |
| US 50/Stateline Avenue | Signal | D/E | total intersection total intersection total intersection worst movement | $\begin{aligned} & \text { C } \\ & \text { D } \\ & \text { D } \\ & \text { D } \end{aligned}$ | $\begin{aligned} & 34.2 \\ & 41.3 \\ & 46.8 \\ & 25.8 \end{aligned}$ |  |  |  |  |
| US 50/Park Ave/Heavenly Village Way | Signal | D/E |  |  |  |  |  |  |  |
| US 50/Pioneer Trail | Signal | D/E |  |  |  |  |  |  |  |
| Lake Parkway/Western Montbleu Driveway | TWSC | E |  |  |  | n/a | n/a | n/a | n/a |
| Lake Parkway/Eastern Montbleu Driveway | TWSC | E | worst movement | B | 13.0 | F | 66.8 | F | OVF |
| Event Starting in Peak Hour | TWSC | E | worst movement | $\begin{aligned} & \mathrm{n} / \mathrm{a} \\ & \mathrm{n} / a \\ & \mathrm{n} / a \end{aligned}$ | n/a | D | 26.1 | C | 20.7 |
| Mitigated - TCO; OR | TCO | E | worst movement |  | $n / a$ |  |  |  |  |
| Mitigated - Add TWLTL | TWSC | E | worst movement |  | n/a |  | 34.3 |  |  |
| Lake Parkway/Heavenly Village Way | AWSC | D/E | total intersection | C | 22.9 | E | 39.1 | n/a | n/a |
|  | Signal | D/E | total intersection | $\mathrm{n} / \mathrm{a}$ | n/a | n/a | n/a | c | 28.9 |
| Event Starting in Peak Hour | AWSC | D/E | total intersection | $\mathrm{n} / \mathrm{a}$ | n/a | c | 20.7 | $n / a$ | n/a |
| Note: TWSC = Two-Way Stop-Controlled; AWSC = All-Way Stop-Controlled; TCO = Traffic Control Office |  |  |  |  |  |  |  |  |  |
| Note: Bold indicates the LOS standard is exceeded. A bold LOS "E" indicates LOS E for more than 4 hours per day, which exceeds the LOS standards. |  |  |  |  |  |  |  |  |  |
| Note: Results are reported for an event ending during the summer PM peak hour. In cases near or exceeding the LOS threshold, an event starting during the peak hour is also analyzed. Note; OVF = Overflow conditions, where average delay per vehicle exceeds 300 seconds. |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Note 1: "D/E" indicates an LOS standard of "D", but "E" may be allowed for not more than 4 hours per day. |  |  |  |  |  |  |  |  |  |
| Note 2: For roundabouts in Nevada, the worst movement is reported, and signalized LOS criteria is applied to the worst movement delay. Source: LSC Transportation Consultants, Inc. |  |  |  |  |  |  |  |  |  |

While this segment would operate at an unacceptable LOS, the key intersections adjacent to this facility would operate at an acceptable LOS. These intersections provide turn lane improvements and other capacity-enhancements to meet the travel demand. The proposed project would not affect roadway LOS on the remaining segments, which would continue to operate at an acceptable LOS E or better.

## Roadway LOS with Loop Road

The existing year roadway LOS with the TSEC and implementation of the Loop Road Project is shown in the far right columns of the table. The segment of New U.S. 50 between Lake Parkway and Heavenly Village Way would operate at LOS E for not more than 4 hours a day, which is considered to be acceptable. Additionally, New U.S. 50 between Heavenly Village Way and Pioneer Trail would operate at an acceptable LOS D with the TSEC project. Implementation of the Loop Road Project would mitigate the LOS concern on the segment of Old U.S. 50 between Park Avenue and Pioneer Trail. As such, no LOS deficiencies are identified with the Project and Loop Road Project.

Alternatives A, B and C would have the same LOS results as the Proposed Project.

## Mitigation

The Regional Plan indicates that "These vehicle LOS standards may be exceeded when provisions for multi-modal amenities and/or services (such as transit, bicycling, and walking facilities) are adequate to provide mobility for users at a level that is proportional to the project-generated traffic in relation to overall traffic conditions on affected roadways." With provisions for adequate multi-modal amenities and/or services that meet these criteria, the project impact on roadway LOS would be less than significant, without the Loop Road. However, while the Tahoe Regional Planning Compact looks to "reduce the dependency on the private automobile" there are currently no adopted requirements or standards regarding the quality of service of other travel modes (i.e. transit, biking, or walking) that could potentially reduce the demand on the roadway system.

The TSEC Project could potentially provide a transit capacity improvement to reduce traffic on U.S. 50. For example, the TSEC Project could provide the subsidy cost (payment to TTD) for an additional fixed route bus operating during the peak summer and winter seasons. Or, the TSEC Project could provide payments to TTD to offset the loss of revenue associated with making some or all TTD routes free to the rider.

Note that further reducing maximum event size during summer peak periods would mitigate the LOS on U.S. 50 between Park Ave and Pioneer Trail to an acceptable level. Alternatively, implementation of the Loop Road Project would mitigate the LOS on this segment.

No roadway LOS mitigation measures are required with the Loop Road Project.

Alternatives $A, B$ and $C$ would have the same mitigation as the Proposed Project.
TABLE 3.5-17: Existing Year Roadway Level of Service Summary

|  |  |  |  |  | Maximum <br> Allowable <br> Two-Way | Existing | Withou | ut Project | Existing | g With | Project | Existing Wi | $\begin{aligned} & \text { th Loop } \\ & \text { Project } \end{aligned}$ | Road With |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Roadway <br> Segment | Between | And | Classification | $\begin{gathered} \text { LOS } \\ \text { Threshold } \end{gathered}$ | Peak-Hr <br> Volume to <br> Achieve LOS | Peak-Hour Two-Way Volume | LOS | Exceeding LOS <br> Threshold? | Peak-Hour Two-Way Volume | LOS | Exceeding LOS <br> Threshold? | Peak-Hour <br> Two-Way <br> Volume | LOS | Exceeding LOS <br> Threshold? |
| US 50 | Kingsbury Grade | Lake Parkway | 4-Lane Urban Arterial w/Center Lanè | $\mathrm{D} / \mathrm{E}^{1}$ | 3,000 | 3,016 | $\mathrm{E}^{2}$ | No | 3,001 | $\mathrm{E}^{2}$ | No | 3,001 | $\mathrm{E}^{2}$ | No |
| US 50 | Lake Parkway | MontBleu | 4-Lane Urban Arterial w/Center Lane | $\mathrm{D} / \mathrm{E}^{1}$ | 3,000 | 2,153 | D | No | 2,111 | D | No | - | - | - |
| US 50 | MontBleu | Stateline Ave | 4-Lane Urban Arterial w/Center Lane | $\mathrm{D} / \mathrm{E}^{1}$ | 3,000 | 2,256 | D | No | 2,139 | D | No | - | - | - |
| US 50 | Stateline Ave | Park Ave/Heavenly Village Wy | 4-Lane Urban Arterial w/Center Lane | $\mathrm{D} / \mathrm{E}^{1}$ | 3,000 | 2,457 | D | No | 2,418 | D | No | - | - | - |
| US 50 | Park Ave/Heavenly Village Wy | Pioneer Trail | 4-Lane Urban Arterial w/Center Lane | D/E ${ }^{1}$ | 3,000 | 3,278 | $\mathrm{E}^{2}$ | No | 3,388 | E | Yes | - | - | - |
| New US 50 | Lake Parkway | Heavenly Village Wy | 4-Lane Urban Undivided Arterial | $\mathrm{D} / \mathrm{E}^{1}$ | 2,600 | - | - | - | - | - | - | 2,614 | $\mathrm{E}^{2}$ | No |
| New US 50 | Heavenly Village Wy | Pioneer Trail | 4-Lane Urban Arterial w/Center Lane | $\mathrm{D} / \mathrm{E}^{1}$ | 3,000 | - | - | - | - | - | - | 2,730 | D | No |
| Source: LSC Transportation Consultants, Inc. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Impact: Roadway LOS Under 'Future Cumulative Year With Project' Conditions - Proposed Project and Alternatives A and B. One study roadway segment along U.S. 50 would operate at LOS F under 'with project' conditions. A different segment along U.S. 50 would operate at an unacceptable LOS E with the Loop Road. This exceeds the applicable standard. Alternative C would have the same impact as the Proposed Project, except one additional segment would exceed the LOS threshold with the Loop Road.

Analysis: Future year roadway LOS is summarized in Table 3.5-18. As indicated in the table, the segment of U.S. 50 between Park Avenue and Pioneer Trail would operate at LOS F, regardless of whether the proposed TSEC project is implemented. This exceeds the LOS standard.

While this segment operates at LOS F, the key intersections adjacent to this facility operate at an acceptable level. These intersections provide turn lane improvements and other capacity-enhancements to meet the travel demand. The proposed project would not affect roadway LOS on the remaining segments, which would continue to operate at an acceptable LOS E or better.

## Roadway LOS with Loop Road

The future year roadway LOS with the TSEC and implementation of the Loop Road Project is shown in the far right columns of the table. The following segment of New U.S. 50 between Lake Parkway and Heavenly Village Way would operate at LOS E for more than four hours per day. This exceeds the LOS standard. Implementation of the Loop Road Project would mitigate the LOS concern on the segment of Old U.S. 50 between Park Avenue and Pioneer Trail. All other study segments would operate at an acceptable level under this scenario.

Alternatives $A$ and $B$ have the same LOS as the Proposed Project. However, under Alternative C, the segment of US 50 between Kingsbury Grade and Lake Parkway would also exceed the LOS threshold with the Loop Road Project.

## Mitigation

The Regional Plan indicates that "These vehicle LOS standards may be exceeded when provisions for multi-modal amenities and/or services (such as transit, bicycling, and walking facilities) are adequate to provide mobility for users at a level that is proportional to the project-generated traffic in relation to overall traffic conditions on affected roadways." With provisions for adequate multi-modal amenities and/or services that meet these criteria, the project impact on roadway LOS would be less than significant, with or without the Loop Road. However, while the Tahoe Regional Planning Compact looks to "reduce the dependency on the private automobile" there are currently no adopted requirements or standards regarding the quality of service of other travel modes (i.e. transit, biking, or walking) that could potentially reduce the demand on the roadway system.
TABLE 3.5-18: U.S. 50 Future Roadway Level of Service


The TSEC Project could potentially provide a transit capacity improvement to reduce traffic on U.S. 50. For example, the TSEC Project could provide the subsidy cost (payment to TTD) for an additional fixed route bus operating during the peak summer and winter seasons. Or, the TSEC Project could provide payments to TTD to offset the loss of revenue associated with making some or all TTD routes free to the rider.

Implementation of the Loop Road would improve the LOS on US 50 between Park Ave and Pioneer Trail to an acceptable level. With the Loop Road, further reducing the maximum event size during summer peak periods would mitigate the LOS on New US 50 between Lake Parkway and Heavenly Village Way.

Alternatives $A, B$ and $C$ would have the same mitigation as the Proposed Project.

## SITE ACCESS CONDITIONS

Impact: With the Proposed Project or Alternatives A, B or C, a right-turn lane would be marginally or fully warranted on Lake Parkway at the MontBleu driveway(s) under existing and future 'with project' conditions when an event is starting during PM peak periods. With the Loop Road Project, the existing and future year summer peak-hour traffic volumes meet the warrant for provision of a right-turn lane on New U.S. 50 at the MontBleu driveway, with or without the proposed Events Center project. Under Alternative B, the western driveway on Lake Parkway does not meet the required functional distance to/from the US 50/Lake Parkway intersection.

Analysis: First, the need for new turn lanes at the site access points is analyzed. Next, driver sight distance conditions are reviewed. Finally, site access and internal circulation conditions are evaluated.

## Turn Lane Warrants

Traffic volumes at the site access intersections were reviewed regarding the need for new right-turn lanes along Lake Parkway. (Analysis of the need for new left-turn lanes is not necessary, given that leftturn lanes are already provided at the site access points.) The need for a right-turn lane on a major roadway is evaluated in NCHRP 457: Evaluating Intersection Improvement: An Engineering Study Guide (TRB, 2001). The criteria used to determine the need for a right-turn lane are speed of the roadway, the total approach traffic volume, and the volume of right-turns. Based on this methodology using a speed of 35 mph on Lake Parkway eastbound, a right-turn lane would be marginally warranted on Lake Parkway at the Eastern MontBleu driveway under existing and future 'with project' conditions when an event is starting during the PM peak hour (but not when an event lets out).

## Turn Lane Warrant With Loop Road

The NDOT Access Management System and Standards (2017) provides right-turn lane warrant criteria for NDOT roadways. With the Loop Road and an increased speed limit of 40 mph on New U.S. 50, the right-turn lane volume warrant would be met at the Eastern MontBleu driveway intersection during the existing and future summer PM peak hour. Note that without the proposed TSEC Project, a new rightturn lane would be warranted on New U.S. 50 at the Western MontBleu driveway with the Loop Road.

That is, this warrant would be met at MontBleu with the Loop Road, regardless of whether the TSEC project is implemented.

The turn lane warrants under Alternative $A$ are the same as the Proposed Project. Under Alternative B, the right-turn warrant may be fully met (with or without Loop Road). Under Alternative C, the right-turn lane warrant would be fully met (with or without Loop Road).

## Driver Sight Distance

Driver sight distance is evaluated at the proposed site access driveways. Driver sight distance standards are categorized under two basic types: intersection and stopping sight distance. Intersection sight distance (also known as corner sight distance) is the distance a driver waiting at a cross street should be able to see in either direction along the main roadway in order to accurately identify an acceptable gap in through traffic. A clear line of sight should be maintained between the driver pulling out of the site driveway and any approaching vehicles on the major street. Sight distance should be sufficient to provide at least 7.5 seconds for the driver on the crossroad to complete the necessary maneuver while the approaching vehicle travels at the assumed design speed of the main roadway. The second type of driver sight distance is stopping sight distance, which is the distance required by the driver of a vehicle moving along the main roadway (such as Lake Parkway) to safely bring a vehicle to a stop after an object on the road becomes visible. This is the minimum distance needed for a driver to see an object in his/her path (such as a vehicle turning onto the roadway) and safely come to a stop.

Currently, Lake Parkway is a Douglas County roadway with a functional classification of Local Road. According to the Douglas County Design Criteria and Improvement Standards, intersection sight distance should be evaluated using the definitions in the American Association of State Highways and Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets. Based upon a speed of 40 miles per hour along Lake Parkway, the minimum corner sight distance for left turns from the proposed driveway is 445 feet. For right turns, 385 feet of corner sight distance is needed. At the proposed driveway location, Lake Parkway has a grade of approximately 6 percent. Considering the grade, the required stopping sight distance along Lake Parkway is 333 feet in the downhill direction (toward U.S. 50) and 278 feet in the uphill direction (away from U.S. 50). (No adjustment of the corner sight distance value is needed because both the major- and minor-road vehicle will be on the same grade when departing from the intersection.)

The proposed driveway on Lake Parkway (the existing MontBleu eastern driveway) currently provides about 445 feet of corner sight distance to the right, which meets the standard. Looking to the left, over 450 feet of corner sight distance is provided. With the proposed project, as the retaining wall east of this driveway would be below the elevation of the existing sidewalk on Lake Parkway, no foreseeable corner sight distance issues are expected. Stopping sight distance in exceedance of 350 feet is available along Lake Parkway for both directions of travel. As the actual sight distance values exceed the requirements, no sight distance issues are identified at the existing eastern driveway on Lake Parkway. Finally, no driver sight distance concerns are identified at the main driveway on U.S. 50.

## Driver Sight Distance With Loop Road

If the Loop Road alternative of converting Lake Parkway into the new U.S. 50 alignment is implemented, New U.S. 50 would be under NDOT jurisdiction. Additionally, New U.S. 50 would have a 4 -lane cross section and the speed limit would be increased to 40 miles per hour. For purposes of driver sight
distance, a speed of 45 mph is assumed. Based on NDOT sight distance standards (which are based on AASHTO standards), a corner sight distance of 530 feet for left turns from the site driveway and 463 feet for right turns along a four-lane highway is recommended. Stopping sight distance of 331 and 400 feet for an up and down grade of $6 \%$ is specified.

The NDOT stopping sight distance standards are expected to be met with implementation of the 4-lane new U.S. 50. Additionally, the corner sight distance requirements are expected to be met, so long as the final landscaping plans do not hinder the corner sight distance.

No driver sight distance concerns are identified at the main driveway on old U.S. 50 under the Loop Road alternative.

No driver sight distance concerns are expected under Alternatives A, B and C.

## Site Access and Internal Circulation

The project proposes to eliminate the existing Western MontBleu Driveway on Lake Parkway. Reducing the number of access points would improve the traffic flow conditions along Lake Parkway. According to the NDOT Access Management Systems and Standards (2017), driveways should be located outside the functional area of an intersection. The minimum upstream and downstream functional distances on Lake Parkway east of the U.S. 50/Lake Parkway intersection based on a posted speed limit of 35 mph are approximately 565 feet and 720 feet, respectively. As roughly 800 feet of functional distance is provided between the U.S. 50/Lake Parkway intersection and the Eastern MontBleu Driveway, this indicates the driveway spacing is adequate.

Two-way internal circulation would be provided through the project site. No concerns are identified with regards to the internal circulation plans.

## Site Access Conditions With Loop Road

The minimum upstream and downstream functional distances on New U.S. 50 east of the U.S. 50/Lake Parkway intersection based on a posted speed limit of 40 mph are approximately 575 feet and 825 feet, respectively. Roughly 800 feet of functional distance is provided between the U.S. 50/Lake Parkway intersection and the Eastern MontBleu Driveway. As the proposed project would eliminate the existing driveway closest to the U.S. 50/Lake Parkway intersection, and the other existing driveway (the Eastern Driveway) is proposed to be moved slightly farther from the U.S. 50/Lake Parkway intersection, the resulting functional distances are expected to be adequate. Furthermore, moving the proposed driveway farther to the east (to achieve the full 825 feet of downstream functional distance) would reduce the driver sight distance to the east of the driveway.

Alternatives A and C have the same site access and internal circulation conditions as the Proposed Project.

## Site Access and Internal Circulation Under Alternative B

Alternative B would utilize the existing Western MontBleu Driveway on Lake Parkway, as well as an eastern driveway. As such, it would not provide the benefit of reducing the number of access points. The western driveway also does not meet the minimum functional distance to the US 50/Lake Parkway intersection as set forth in the NDOT Access Management Systems and Standards, with or without the

Loop Road. Another disadvantage of this alternative is that there would be no vehicular connectivity between the upper parking lot and the other MontBleu parking areas. That is, drivers wishing to circulate between the parking areas would impact Lake Parkway.

## Summary

An eastbound right-turn lane would be marginally warranted on Lake Parkway at the Eastern MontBleu driveway under existing and future 'with project' conditions, only when an event is starting during PM peak periods.

With the Loop Road Project, the existing and future year summer peak-hour traffic volumes meet the warrant for provision of a right-turn lane on New U.S. 50 at the MontBleu driveway, with or without the proposed TSEC project.

Adequate driver sight distance conditions are expected to be provided with the proposed project, so long as the final landscaping plans do not hinder the corner sight distance.

Alternatives $A$ and $C$ have the same results as the Proposed Project. Under Alternative $B$, a right-turn lane may also be warranted at the Western MontBleu driveway on Lake Parkway. Additionally, under Alternative $B$ there are concerns regarding driveway spacing and circulation conditions.

## Mitigation

An eastbound right-turn lane should be provided on Lake Parkway at the Eastern MontBleu driveway under existing and future 'with project' conditions to address impacts when an event is starting during PM peak periods.

With the Loop Road Project, provision of a right-turn lane on New U.S. 50 at the MontBleu driveway may be needed, with or without the proposed TSEC project. Provision of a right-turn bay can significantly improve operations and safety at the intersection, as it effectively separates those vehicles that are slowing or stopped to turn from those vehicles in the through traffic lanes. The project description for the Loop Road indicates the new U.S. 50 alignment would have turn pockets at major intersections and driveways.

The final landscaping plans should be reviewed to ensure that they do not hinder the corner sight distance at the site access intersections.

Alternatives $A$ and $C$ have similar mitigation to the Proposed Project. Alternative B may require additional mitigation measures because of the proposed relocation of the main driveway for this location.

## VMT

Impact: The Proposed Project is expected to result in a reduction in VMT on a busy summer day over existing levels and would maintain VMT levels below the adopted TRPA threshold standard. It is possible that a net increase in VMT could occur if the proposed paid parking program and microtransit service do not result in a sufficient reduction in vehicle trips to achieve a net zero increase in VMT. As this would exceed the performance standard, this is considered a potentially significant impact. Alternatives A, B and C would result in an increase in VMT and would therefore exceed the performance standard. This is considered a significant impact.

Analysis: Impact on Vehicle Miles Traveled (VMT) within the Tahoe Region can best be established based upon project trip generation and distribution to the various portions of the Tahoe Region (including external access points). The change in VMT resulting from implementation of the project is estimated based upon the net change in regional vehicle trips generated by the project factored by the average trip distance to each area. In addition, the proposed paid parking and microtransit program will result in a reduction in existing vehicle trips made to/from the Casino Core. First, this reduction in existing VMT is estimated. Next, the VMT generated by new vehicle trips made to/from the proposed event venue is analyzed. Finally, the additional daily trips and VMT generated by new overnight visitors to the Tahoe Region beyond the direct trips to/from the Events Center are estimated. Adding the projectgeneratedis VMT to the reduction in existing VMT yields the 'project net impact' on VMT within the Tahoe Basin boundaries.

## VMT METHODOLOGY

VMT is a computed value which correlates to the degree of an area's reliance on the private automobile for trip-making. The TRPA TransCAD Travel Demand Model provides a forecast of the number of trips made on the roadway network and the distance between trip origins and destinations for each trip purpose within the Basin. Total VMT is the sum of all these trip lengths. The project's impact on Regional VMT over the course of a summer day is evaluated, using a spreadsheet-based method consistent with the TRPA's "Guidance for Assessment of Vehicle Miles Traveled (VMT) Impacts of Projects in the Tahoe Basin" (TRPA, April 4, 2019).

First, the proportions of trips made by different types of users are identified and multiplied by the total trip generation to identify the number of trips by user type. Next, average trip lengths within the Tahoe Basin are estimated. The trips for each user-type are multiplied by the trip lengths to estimate the VMT. Finally, effects on regional VMT are discussed.

## KEY ASSUMPTIONS IN VMT ANALYSIS

The following key assumptions are applied in the VMT analysis for the summer "design day" (these assumptions are consistent with those applied in the trip generation analysis):

- A 2,500-attendee concert/entertainment or sporting event occurs at the proposed venue
- The proposed paid parking program and microtransit service are implemented
- Casino core employees are exempted from the paid parking program
- Only one event occurs at the proposed event venue over the course of the day
- No concert event occurs at Harvey's.


## REDUCTION IN EXISTING VMT

The reduction in existing VMT due to implementation of the proposed paid parking and microtransit programs is evaluated first for existing Casino Core visitors and then for Casino Core employees. This is based on the impacts of paid parking and microtransit on existing (employee and visitor) trip generation.

## Reduction in Existing Visitor VMT

To estimate the VMT reduction associated with existing Casino Core visitors, their average trip lengths must be identified. The TRPA VMT Guidance provides average trip lengths for overnight visitors in the Casino Core Traffic Analysis Zones. The proportion of trips by trip-type is also provide for overnight visitor uses. Applying these proportions to the length for each trip-type yields an overall weighted average trip length for visitors lodged in the Casino Core of 5.3 miles, as shown in Table 3.5-19. To estimate average trip lengths for the other two types of visitors (for which specific trip lengths are not defined in the TRPA VMT Guidance), trip distribution patterns are analyzed and the results are summarized in Table 3.5-20 and illustrated in Figure 3.5-12.

The distribution of trips made by overnight visitors lodged outside the Casino Core/local guests is based on 2010, 2014 and 2018 TRPA Summer Mode Share Survey data for non-overnight and non-day visitors to the Casino Core (Tahoe residents and visitors staying other than in the four casinos). The distribution to the various subareas for the proportion reporting they travelled from "South Lake Tahoe" in the Mode Share Surveys was refined based on TRPA model input land use data. The distribution of day visitor trips to the Tahoe Region (that would shift modes) is based on data from the LTVA 2015/16 Visitor Profile Surveys.

Note that this does not reflect the new VMT generated by the microtransit shuttle vehicles as they circulate through the area, which is addressed in the proposed conditions section, below.

Finally, due to paid parking, some existing visitors would circulate while looking for free parking spaces within a half-mile walk distance of the paid parking area. As indicated in the trip generation analysis, this is a relatively small propertion of overall travel impacted by the paid parking program. As such, the VMI impact of drivers circulating for free parking would be minimal.

## Reduction in Existing Employee VMT

Table 3.5-21 presents the analysis of the VMT reduction associated with existing Casino Core employees. As employees would not be subject to paid parking, the paid parking program would not be expected to affect employee vehicle trips made to/from the Casino Core.

The reduction in employee trips and VMT due to microtransit are estimated. The trip generation analysis indicates a total reduction of 450 one-way daily vehicle trips associated with the microtransit program. Of these trips, 70 percent are estimated to be visitors and 30 percent are employees. It follows that 135 daily vehicle trips are made by employees. These trips are distributed to the following five locations that would be served by microtransit, based on recent employee residence location data from Stateline resort hotels (the distribution of all employee residences is shown in Figure 3.5-13):

- Bijou/Al Tahoe
- Pioneer Trail North/Ski Run
- Casino Core
- Kingsbury
- Round Hill

The distribution to the five locations (as shown in Table 3.5-21) also reflects that the Pioneer Trail North/Ski Run and Round Hill neighborhoods would be fully served by microtransit, whereas the Bijou/Al Tahoe and Kingsbury areas would only be partially served (as some of these neighborhoods, such as Upper Kingsbury, are beyond a reasonable walking distance from the service area). Casino Core employees residing in the Casino Core are not assumed to ride the microtransit shuttles, as they live within a convenient walking distance. Multiplying the trip reductions by the corresponding trip lengths yields a reduction of 374 VMT due to employees riding microtransit. Note that this does not reflect the new VMT generated by the microtransit shuttle vehicles, which is addressed below.

TAHOE SOUTH EVENTS CENTER PROJECT EA TRANSPORTATION, PARKING AND CIRCULATION
TABLE 3.5-19


TABLE 3.5-20: Distribution and Trip Length - Visitor Trips

| Origin/Destination | Average Trip Length (miles) | Trip Distribution |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Overnight Visitor Lodged Elsewhere or Local Guest |  | Day Visitor |
|  |  | Existing <br> Visitor | Event <br> Attendee |  |
| North Shore | 29.4 | 7\% | 9\% | 2\% |
| West Shore | 27.4 | 3\% | 3\% | -- |
| Camp Richardson/Emerald Bay | 11.4 | 10\% | 10\% | -- |
| Echo Summit | 13.9 | 0\% | 0\% | 71\% |
| Meyers/Pioneer Trail South | 9.4 | 8\% | 8\% | -- |
| Tahoe Keys | 6.8 | 8\% | 7\% | -- |
| Tahoe Valley | 5.8 | 9\% | 13\% | -- |
| Bijou/Al Tahoe | 3.2 | 14\% | 14\% | -- |
| Pioneer Trail North/Ski Run | 2.8 | 9\% | 13\% | -- |
| Casino Core | 0.7 | 17\% | 9\% | -- |
| Kingsbury | 1 | 9\% | 8\% | -- |
| Kingsbury Grade (Daggett Pass) | 3.5 | 0\% | 0\% | 5\% |
| Round Hill | 2.2 | 2\% | 2\% | -- |
| East Shore (North of Round Hill) | 6.6 | 4\% | 4\% | -- |
| Spooner Summit | 12.8 | 0\% | 0\% | 22\% |
| Total |  | 100\% | 100\% | 100\% |
| Weighted Average Trip Length (mi) |  | 7.1 | 7.9 | 13.4 |

Note: Based on summer "design" day assumptions.
Note: Trip distribution for existing visitors lodged in the Casino Core is not shown because their average trip length is based on trip lengths provided in the TRPA VMT guidance document.

Source: LSC Transportation Consultants, Inc.

## VMT OF PROPOSED USE

The VMT generated by vehicle trips made to/from the proposed event venue is analyzed for event attendees and employees.

## Vmt of Proposed Event Attendees

The VMT generated by event attendees going to/from the proposed event venue is evaluated. First, the VMT generated without paid parking and microtransit is evaluated, based on the trip generation under Alternative C. Next, the VMT reductions resulting from paid parking and microtransit are analyzed and the net increase in VMT generated by event attendees is determined. The analysis is summarized in the lower half of Table 3.5-19.


## Table 3.5-21

| VMT Reduction in Tahoe Basin - Existing Employee Trips |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Average Trip Length (miles) | Existing Daily Casino Core Employee Trips |  |  |
| Origin/Destination |  | Distribution of Trips Shifting to Microtransit | Trip Reduction Due to Microtransit | Daily VMT <br> Reduction Due to Microtransit |
| North Shore | 29.4 | -- | -- | -- |
| West Shore | 27.4 | -- | -- | -- |
| Echo Summit | 13.9 | -- | -- | -- |
| Meyers/Pioneer Trail South | 9.4 | -- | -- | -- |
| Tahoe Keys | 6.8 | -- | -- | -- |
| Tahoe Valley | 5.8 | -- | -- | -- |
| Bijou/Al Tahoe | 3.2 | 36\% | -49 | -157 |
| Pioneer Trail North/Ski Run | 2.8 | 41\% | -55 | -154 |
| Casino Core | 0.7 | 0\% | 0 | 0 |
| Kingsbury | 1.0 | 3\% | -4 | -4 |
| Kingsbury Grade (Daggett Pass) | 3.5 | -- | -- | -- |
| Round Hill | 2.2 | 20\% | -27 | -59 |
| East Shore (North of Round Hill) | 6.6 | -- | -- | -- |
| Spooner Summit | 12.8 | -- | -- | -- |
| Total | 5.4 | 100\% | -135 | -374 |

Note: Based on summer "design" day assumptions.
Note 1: This is the weighted average trip length.
Source: LSC Transportation Consultants, Inc.
The distribution of vehicle trips made by event attendees going to/from the venue is illustrated in Figure 3.5-12. As shown in Table 3.5-20, the weighted average trip length for event attendees lodged elsewhere and local visitors is 7.9 miles. Based on the trip generation analysis for Alternative C, event attendees generate a total of 1,569 daily one-way vehicle trips to/from the casino driveways without paid parking and microtransit. The split of these trips between overnight visitors and day visitors is based on the LTVA 2017 Summer Concert Surveys data. Overnight visitors lodged in the immediate Casino Core are assumed to travel to/from the event venue by non-auto modes. The allocation of the 1,569 daily attendee vehicle trips to each area (or Basin entry point) is shown in Table 3.5-20, and the resulting VMT is shown in Table 3.5-19. As indicated in the middle columns, a total of 16,382 VMT are estimated to be generated by event attendees before reductions are taken for paid parking and microtransit.

Next, the reductions in daily vehicle trips due to paid parking, as provided in the trip generation analysis, are shown for each attendee type. Multiplying the daily trips by the average trip lengths yields a total reduction of $3,636 \mathrm{VMT}$ due to paid parking. Additionally, multiplying the reduction in event attendee daily vehicle trips due to microtransit ( 24 one-way trips, as per the trip generation analysis) by the average trip length yields a reduction of 46 VMT . The resulting total reduction in daily VMT due to paid parking and microtransit is 3,682 .


## Additional VMT of New Overnight Visitors to the Tahoe Region

Event Center attendees staying in the Casino Core would displace other non-event visitors to other lodging options in the South Shore area, so long as there is available lodging capacity in other properties. To address this, available occupancy data for the remainder of South Tahoe was reviewed, indicating the following:

- A major hotel in South Lake Tahoe indicates peak occupancy on early August weekend evenings of 92 to 95 percent.
- The "City of South Lake Tahoe Lodging Reporting" tabulations indicate a maximum monthly occupancy in 2019 of 47 percent.
- The "Douglas County Lodging Tahoe Township Year-over-Year Comparison" indicates a peak 2019 summer monthly occupancy of 74 percent.

The monthly occupancy data averages occupancy over all days, and peak weekend occupancy is probably higher (daily data is not available from Douglas County or the City of South Lake Tahoe). It cannot be concluded from this data, however, that there is typically no excess lodging capacity anywhere in South Shore to accommodate the additional visitor groups generated by the Event Center. It is therefore necessary to add the VMT associated with all new overnight visitor groups to the Tahoe Region (over the course of the full day, including access trips to the region and other trips), beyond the VMT associated solely with the trip to and from the Event Center event associated with event attendees staying outside the Casino Core properties (which is already included above under "VMT of Proposed Event Attendees").

As shown in the Table 3.5-22, this additional VMT was calculated as follows:

- The TRPA Trip Table provides a daily trip rate of 10.20 vehicle-trips per occupied hotel room. (While the motel rate is lower at 8.71 , the higher hotel rate is conservatively assumed). Per the Reno Casino Trip Generation Study, 86 percent of total trip generation is estimated to be generated by guests. As trips to/from the actual event are already reflected in the existing figures, the associated vehicle-trips (adjusted to reflect non-auto modes) are subtracted. This yields a daily trip rate of 7.17 additional daily vehicle-trips per visitor group.
- The TRPA TransCAD model provides average trip lengths for trips generated by lodging land uses (for four trip types), by TAZ (as provided in the TRPA Guidance for Assessment of Vehicle Miles Traveled Impacts of Projects in the Tahoe Basin). The weighted average trip length was calculated from these values, weighted by the number of hotel/motel units in each TAZ and assuming the displaced visitors shift to other available lodging in South Lake Tahoe or in Douglas County between Stateline and Round Hill. The TRPA guidance also provides the proportion of total trips by type, allowing the calculation of an average overall trip length of 6.19 miles. Note that this length reflects trips both to/from the Basin (from an external point) as well as trips within the Basin.
- Multiplying the daily additional trips by the average trip length yields a figure of 44.39 VMT per additional visitor group per day.
- It is next necessary to calculate the number of new visitor groups that would be generated by an event. The Lake Tahoe Visitors Authority's 2017 summer concert survey data indicates that 57 percent of attendees surveyed at musical events were overnight visitors, while the other 43 percent were local residents or day visitors (whose additional VMT is generated only by the trip to/from the actual event, which is already reflected in the analysis). Many of the overnight visitors also indicated that they were visiting for other reasons: Asked the importance of the concert in their decision to visit the South Shore on a scale of 1 (very important) to 7 (not at all important), 56 percent indicated a 1 or 2 (and thus are assumed to be new visitors that would not otherwise have come while the remainder are overnight visitors here for other reasons and attending a concert). Using this data and an average group size of 2.77, a 2,500-attendee event can be found to generate 288 new overnight visitor groups to Tahoe.
- Not all new visitor groups will arrive with a car. Analysis of the TRPA 2018 Travel Mode Survey for overnight visitors on the South Shore indicate that 96 percent arrived by private vehicle. Applying this mode share factor, 276 new overnight visitors with private vehicles would travel to Tahoe.
- Multiplied by the VMT per visitor group, a 2,500-attendee event generates 12,252 VMT per day above the VMT associated solely with the trip to and from the actual event. The equivalent figure for a 6,000-attendee event is 29,432 based on summer travel characteristics.

As shown in the lower right corner of Table 3.5-19, adding the 12,252 VMT generated by new visitor groups to the 16,382 VMT generated by event attendees and subtracting the 3,682 VMT reduction due to paid parking and microtransit yields a total of 24,952 daily VMT generated by event attendees and the associated new overnight visitor groups under the proposed project.

## VMT of Event Venue Employees

Table 3.5-23 presents an analysis of the VMT generated by employees/staff vehicles associated with the proposed event venue. The average trip lengths and trip distribution to the origin/destination locations shown in the left-hand portion of the table are the same as that of existing Casino Core employees. Without paid parking and microtransit, the event venue employees would generate a total of 78 daily one-way vehicle trips using the casino driveways (reference analysis of Alternative C). Applying the trip distribution pattern to these trips yields the daily vehicle trips generated to/from each origin/destination location. Multiplying these trips by the average trip lengths yields a total of 419 VMT generated by event venue employee/service vehicles.

Table 3.5-22


Next, the additional reductions in employee trips and VMT due to microtransit are estimated. The trip generation analysis indicates that there would be a 2 percent reduction in daily employee vehicle trips due to microtransit, which equates to a reduction of 1 one-way employee vehicle trip. This trip is distributed to the Pioneer Trail North/Ski Run area, which has the highest distribution of employee trips shifting to microtransit. The resulting VMT reduction due to microtransit is 3 employee VMT.

Subtracting the 3 VMT saved by microtransit from the 419 project-generated employee VMT yields a total increase of 416 VMT associated with the proposed event venue employees. As the existing Casino Core employee VMT would decrease by 374266 , the net increase in employee daily VMT within the Basin would be $\underline{42150 .}$

## VMT of Event Delivery/Service Vehicles

All service trips are assumed to consist of new trips to the Tahoe Basin, in order to provide a conservative estimate. In reality some service stops at the TSEC will consist of existing trips already passing by the site for existing customers. As shown in Table 3.5-2 43 , multiplying the weighted average trip length of 12.6 miles by the 40 project-generated daily delivery/service vehicle trips yields a total of 505 VMT in the Basin.

## VMT of Microtransit Shuttle Vehicles

While the proposed microtransit shuttle service will tend to reduce VMT by shifting travelers from auto trips, the transit vehicles will also generate new VMT. Table 3.5-25 4 presents the analysis of the daily VMT generated by the transit vehicles, based on four vehicles in operation over a 146 -hour day.Each vehicle is estimated to operate a full round trip (both sides of the event venue) in one hour (providing service on 30 -minute frequencies), except that in peak traffic periods delays would require1.5 hours per round trip (a- 45 minute frequeney). Approximately 72 round-trips would operate daily in the service area east of Ski Run Boulevard, while 48 round-trips would operate daily in the service area west of Ski Run Boulevard, for a total of $\underline{12028 \text { daily round-tripswould be operated daily. At a weighted }}$ average round-trip length of 2.4 miles (including 0.5 mile every hour for deviation to specific request locations), the service generates 566 VMT per day.
TABLE 3.5-2 $\underline{3}$

| VMT in Tahoe Basin - Proposed Event Venue Employees |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Daily Event Venue Employee Trips |  |  |  |  |  |  |  |
| Origin/Destination | Average Trip Length (miles) | Trip Distribution | DVTE Generated <br> Without Paid <br>  <br> Microtransit | VMT Generated Without Paid Parking \& Microtransit | Distribution of Trips Shifting to Microtransit | Reduction in DVTE Due to Microtransit | Reduction in VMT Due to Microtransit | Total Project- <br> Generated <br> VMT With <br> Microtransit | Project Net <br> Impact on <br> Employee <br> Daily VMT ${ }^{1}$ |
| North Shore | 29.4 | 1\% | 1 | 24 | -- | -- | -- | 24 | 24 |
| West Shore | 27.4 | 0\% | 0 | 0 | -- | -- | -- | 0 | 0 |
| Echo Summit | 13.9 | 1\% | 1 | 11 | -- | -- | -- | 11 | 11 |
| Meyers/Pioneer Trail South | 9.4 | 6\% | 5 | 42 | -- | -- | -- | 42 | 42 |
| Tahoe Keys | 6.8 | 6\% | 4 | 30 | -- | -- | -- | 30 | 30 |
| Tahoe Valley | 5.8 | 13\% | 10 | 59 | -- | -- | -- | 59 | 59 |
| Bijou/Al Tahoe | 3.2 | 21\% | 17 | 53 | 36\% | 0 | 0 | 53 | -104 |
| Pioneer Trail North/Ski Run | 2.8 | 15\% | 12 | 32 | 41\% | -1 | -3 | 29 | -125 |
| Casino Core | 0.7 | 0\% | 0 | 0 | 0\% | 0 | 0 | 0 | 0 |
| Kingsbury | 1.0 | 3\% | 2 | 2 | 3\% | 0 | 0 | 2 | -2 |
| Kingsbury Grade (Daggett Pass) | 3.5 | 16\% | 13 | 44 | -- | -- | -- | 44 | 44 |
| Round Hill | 2.2 | 7\% | 6 | 12 | 20\% | 0 | 0 | 12 | -47 |
| East Shore (North of Round Hill) | $6.6$ | 0\% | 0 | 0 | -- | -- | -- | 0 | 0 |
| Spooner Summit | $12.8$ | 11\% | 9 | 110 | -- | -- | -- | 110 | 110 |
| Total | $5.4 \quad{ }^{2}$ | 100\% | 78 | 419 | 100\% | -2 | -3 | 416 | 42 |
| Note: Based on summer "design" day assumptions. |  |  |  |  |  |  |  |  |  |
| Note: DVTE = Daily Vehicle Trip Ends. |  |  |  |  |  |  |  |  |  |
| Note 1: Project net impact on VMT is the sum of the project-generated VMT and the reduction in existing VMT. Reduction in VMT of existing employees is provided in Table 3. |  |  |  |  |  |  | oyees is provide | in Table 3. |  |

## Table 3.5-24: VMT of Proposed Event Delivery/Service Trips

| Origin/Destination | Average Trip Length (miles) | Event Venue Delivery/Service Trips |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Trip Distribution | Daily 1-Way <br> Vehicle-Trips | VMT |
| Brockway Summit | 33.2 | 5\% | 2 | 66 |
| Echo Summit | 13.9 | 20\% | 8 | 111 |
| Kingsbury Grade (Daggett Pass) | 3.5 | 15\% | 6 | 21 |
| Spooner Summit | 12.8 | 60\% | 24 | 307 |
| Total | 12.6 | 100\% | 40 | 505 |

Note: Based on summer "design" day assumptions.
Note: DVTE = Daily Vehicle Trip Ends.
Note 1: This is the weighted average trip length.
Source: LSC Transportation Consultants, Inc.

## VMT Of Drivers Searching for Parking

Some event attendees are expected to look for free parking spaces within a half-mile walk distance of the paid parking area. Although However, as_this is a relatively small proportion of overall travel generated by event visitors and the paid parking program, the VMT impact of drivers circulating for free parking is estimated minimat. Based on the number of visitors arriving to the Casino Core via private automobile (after the mode shifts resulting from paid parking and microtransit), approximately 1,519 daily 1 -way trips are expected to generate an additional 0.5 miles of travel searching for free parking, for a total impact of 760 daily VMT.

## SUMMARY OF VMT IMPACTS

The VMT impacts are summarized in Table 3.5-2 $\underline{6} 5$. As shown, the proposed event venue is estimated to generate an increase of approximately $\mathbf{2 5} 13, \underline{873} 636$ daily VMT, with an additional $\underline{566344 \text { VMT }}$ generated by the proposed microtransit shuttle vehicles for a total increase of 26,439 VMT. for a total increase of 13,980 VMT. This increase in VMT would be well offset by the reduction of 35,69391 existing VMT due to paid parking and microtransit. Summing the two figures and adding the 760 VMT generated by those searching for parking yields a net decrease of $\underline{8} 24, \underline{9} 414 \mathrm{VMT}$ in the Tahoe Basin over the course of the summer design day. When compared to the existing summer daily VMT in the Tahoe region of $1,937,070$, the proposed project is estimated to reduce region-wide VMT from existing conditions by approximately 0.41 .1 percent.

Table 3.5-25

## VMT of Microtransit Service on Busy Summer Day

Number of Vehicles in Operation at All Times 4
Hours per Day of Operation 14
Service Area East of Ski Run
Daily Vehicle-Round-Trips 72
Average Vehicle-Round-Trip Length (miles) 4.0
Service Area West of Ski Run
Daily Vehicle-Round-Trips 48
Average Vehicle-Round-Trip Length (miles) 5.8

Daily VMT Generated by Microtransit Vehicles 566

Note 1: Includes 0.5 miles every hour for deviations.
Source: LSC Transportation Consultants, Inc.

## Table 3.5-26

| South Tahoe Events Center - VMT Summary |  |
| :--- | :---: |
|  |  |
| Description | Daily |
| PROPOSED EVENT VENUE |  |
| Attendees -- Trips To/From Event Venue and Additional Trips Within Tahoe Basin | 24,952 |
| Employees | 416 |
| Delivery/Service | 505 |
| Total Proposed Venue | 25,873 |
| PROPOSED MICROTRANSIT SHUTTLE TRIPS | 566 |
| TOTAL PROPOSED PROJECT (INCLUDING PAID PARKING \& MICROTRANSIT) | $\mathbf{2 6 , 4 3 9}$ |
| REDUCTION IN EXISTING VMT (DUE TO PAID PARKING \& MICROTRANSIT) |  |
| Visitors | $-35,319$ |
| Employees | -374 |
| Total Reduction in Existing VMT | $\mathbf{- 3 5 , 6 9 3}$ |
| VMT GENERATED BY PARKING SPACE SEARCHING | $\mathbf{7 6 0}$ |
| PROJECT NET IMPACT ON VMT IN TAHOE BASIN | $\mathbf{- 8 , 4 9 4}$ |
| Source: LSC Transportation Consultants, Inc. |  |

A summary of region-wide daily summer VMT with and without the project is presented in Table 3.5-2긍. Implementation of the proposed project (including the proposed paid parking and microtransit program) would result in VMT levels that are below the TRPA threshold standard.

| Table 3.5-27 Region-Wide Daily Summer VMT |  |  |
| :---: | :---: | :---: |
|  | Last Calculated (2014 base year) | With Proposed Project |
| Region-wide VMT | 1,937,070 | 1,92815,576659 |
| TRPA Threshold Standard | 2,030,938 | 2,030,938 |
| Standard Met | Yes | Yes |
| Source: LSC Transportation Consultants, Inc. $20 \underline{2019}$ |  |  |

## DIscussion of Impact on Regional VMT

The TRPA's Guidance for Assessment of VMT Impact of Projects in the Tahoe Basin (Step 9) requires consideration of the effects on regional VMT.

- Although there are existing vehicle trips made to/from the major casino driveways, to remain conservative in this analysis (conservatively high VMT), all of the vehicle trips made to/from the proposed event venue are considered to be "new" trips within the Tahoe Basin.
- Recent hㅐ﹎otel data indicates that occupancy rates in the Stateline areaeuth Shore are very high during the busy summer season. Event Center attendees staying in the Casino Core would displace other "non-event" visitors to other lodging options in the South Shore area, so long as there is available lodging capacity in other properties. Given this and that the proposed project would not add lodging or residential units, the event venue would not be expected to attract a substantial number of additional overnight visitors to the South Shore area (although it would attract additional visitors in the off-season). The regional access trips made by event attendees lodged in the South Shore are not expected to result in a notable increase in overall VMT. This is because the majority of event attendees lodged in South Shore would either have come to the area regardless of the event or replace other existing overnight visitorsA. Therefore, noadditional VMT is included in this analysis for the additional regional access-trips made by new overnight visitor groupsevent attendees-(staving overnighton the busysummer design days (the focus of the VMMT analysis).).
- The establishment of consistent and permanent paid parking on the Casino Core area will provide a strong "disincentive" for auto use in travelling to and from the activity center - both for future TSEC attendees, as well as existing visitors traveling to and from the Casino Core. This will result in a shift to transit, ridesharing and non-auto travel modes that will result in a reduction in regional VMT.
- The provision of a free-to-the-rider microtransit shuttle program within the vicinity of the Casino Core will augment the overall South Shore transit program and provide a modest additional reduction in regional VMT.


## SENSITIVITY ANALYSIS

For the Draft EA, a sensitivity analysis was is-conducted regarding the previous VMT impacts calculations for the proposed project. Specifically, this analysis presents the results of the net VMT impact assuming variations in four key inputs that would tend to indicate a lower reduction in VMT, and potentially resulting in a net VMT increase. These four key inputs that are considered with regards to sensitivity are as follows:

- The percent reduction in daily traffic resulting from paid parking on the overnight visitors that are lodged in the casino core. Base Value $=1$ percent
- The percent reduction in daily traffic resulting from paid parking on the overnight visitors that are lodged elsewhere in the Tahoe Basin or are local residents. Base Value = 24 percent
- The percent reduction in daily traffic resulting from paid parking on day visitors to the Tahoe Basin (not staying overnight in the Tahoe Basin). Base Value $=20$ percent
- The daily ridership on the proposed new microtransit service. Base Value $=675$ daily boardings_ (recently-revised to 946 in the Final EA, based on eurrently proposedthe enhanced microtransit program).

Considering both the reductions in daily VMT associated with these travel demand management strategies, and the increase in daily VMT associated with travel to/from the proposed event center (on the design day with a 2,500-attendee event), the "base case" result wais a reduction in daily VMT of 21,411 (this does not include additional VMT of new visitor groups to the Basin, as well as the recently expandedenhanced proposed-microtransit program, which now indicates an overall reduction in daily VMT of 8,494).

Key questions addressed in this sensitivity analysis are (1) what is the relative sensitivity of this net result to changes in the four key input values and (2) to what degree can these key inputs change without resulting in a net increase in VMT. Table 3.5-278 presents the analysis that addresses these questions. Note that this table has not been revised for the Final EA and therefore does not reflect the latest calculations of Project VMT. However, the results of the sensitivity analysis are still included in the EA to document the relative importance of the different trip making inputs. Three levels of reductions in the values are shown, in the three individual boxes (for a 10 percent reduction in the factor, 25 percent reduction and 50 percent reduction). Within each of these boxes, each column represents a separate analysis scenario. The cells shaded in blue indicate the factor or factors that have been reduced, and the resulting value, while the cells not shaded indicate inputs not changed in the analysis scenario. Note that for each reduction level, one scenario is evaluated changing only one of the input values while a final scenario assumes the reduction across all four variables.

As an example, the second column in the 10 percent reduction box indicates the shaded value for the percent impact of paid parking on overnight visitors lodged in the casino core used in this scenario of 0.9 percent (which is a 10 percent reduction from the 1.0 percent base case value). The other values in this column indicate those that were not changed. The resulting net change in daily VMT $(-21,298)$ is 113 more than the base case value of 21,411 , which indicates that this 10 percent reduction in this input value yields a 0.5 percent reduction in the net VMT decrease. The right-most column in this box indicates that if all four inputs are reduced by 10 percent the net reduction in VMT would be 17,504, or 3,907 less than the base case (18.2 percent less).

A review of these results indicates the following:

- Reducing any or all of the key inputs by up to 50 percent still yields a net decrease in daily VMT on the design day. A 50 percent reduction in all four factors at the same time still yields a net reduction of 1,885 daily VMT. Put another way, the base case factors can be "too high" by a factor of at least 2 while still yielding a net VMT reduction.
- The VMT analysis is most sensitive to changes in the factor for the paid parking impact on day visitors to the Tahoe Basin. A 25 percent reduction in this factor, for example, decreases the reduction in VMT by 7,022 or 32.8 percent. The overall net VMT is roughly 3 times more sensitive to changes in this input than to changes in the paid parking impact on overnight visitors lodged outside the casino core or residents, and is about 34 times more sensitive than to changes in the microtransit ridership or the impact of paid parking on overnight visitors lodged in the casino core.

Further analysis indicates the following:

- _Reducing all four factors by 55 percent results in a project net impact of no change in daily VMT. Under this scenario, the total weighted average visitor paid parking reduction in daily vehicle trips is $4.8 \%$ (compared to the $10.7 \%$ reduction applied in the technical analysis, as shown in Table 3.58).
- Three of the four key factors (the impact of paid parking on overnight visitors lodged in the casino core, the impact of paid parking on overnight visitors lodged elsewhere/locals and the microtransit ridership) could be completely "zeroed out" individually while still yielding a net reduction in VMT. The fourth factor (the impact of paid parking on day visitors) could be reduced by 77 percent on an individual basis before a net VMT increase would result.

In conclusion, though the sensitivity analysis shows that analysis assumptions could be overstated and trips and VMT would still decrease with operation of the Project, there is still a possibility that a net increase in VMT could occur if the proposed paid parking program and microtransit service do not produce a sufficient reduction in vehicle trips to offset new trips created by the TSEC. Therefore, this impact is considered potentially significant.

## VMT OF MAXIMUM CONCERT EVENT

The VMT generated by vehicle trips made to/from the proposed event venue is analyzed for a maximum concert event with 6,000 attendees, 225 venue employees and 12 full-time employees. This analysis assumes the same travel characteristics and parameters as the summer design day analysis. First, the VMT generated by vehicle trips made to/from the proposed event venue is analyzed for event attendees and employees, based on the trip generation of a maximum concert event. Next, the VMT reductions resulting from paid parking and microtransit are analyzed and the net increase in VMT generated by event attendees is determined. The analysis is summarized in the lower half of Table 3.5-29. Based on the trip generation analysis for a maximum event, event attendees generate a total of 3,765 daily oneway vehicle trips to/from the casino driveways without paid parking and microtransit. The allocation of these daily attendee vehicle trips to each area (or Basin entry point) is shown in Table 3.5-20, and the resulting VMT is shown in Table 3.5-29. As indicated in the far-right column, a total of 39,300 VMT are estimated to be generated by event attendees before reductions are taken for paid parking and microtransit.


Next, the reductions in daily vehicle trips due to paid parking, as provided in the trip generation analysis, are shown for each attendee type. Multiplying the daily trips by the average trip lengths yields a total reduction of 8,705 VMT due to paid parking. Adding the reduction in event attendee VMT due to microtransit ( 4631 VMT ) yields a total reduction in daily VMT due to paid parking and microtransit of 8,75136. In addition, as shown in Table 3.5-22 above, 29,432 VMT are estimated to be generated by new visitor groups to the Basin on a day with a maximum concert event (based on the conservative lodging occupancy assumptions applied on the summer design day).

## Subtracting this from the 39,300 VMAT generated by attendees yields a total of 30,564 daily VMAT

 generated by attendees of a maximum concert event.As shown in the lower right corner of Table 3.5-29, adding the 29,432 VMT generated by new visitor groups to the $39,300 \mathrm{VMT}$ generated by event attendees and subtracting the $8,751 \mathrm{VMT}$ reduction due to paid parking and microtransit yields a total of 59,981 daily VMT generated by event attendees and the associated new overnight visitor groups with a maximum concert event.

## VMT of Event Venue Employees - Maximum Event

Table 3.5-30z9 presents an analysis of the VMT generated by employees/staff vehicles associated with a maximum concert event. Without paid parking and microtransit, the event venue employees and service vehicles would generate a total of 216 daily one-way vehicle trips using the casino driveways (reference analysis of Alternative C). Applying the trip distribution pattern to these trips yields the daily vehicle trips generated to/from each origin/destination location. Multiplying these trips by the average trip lengths yields a total of 1,165 VMT generated by event venue employee/service vehicles.

Next, the additional reductions in employee trips and VMT due to microtransit are estimated. The trip generation analysis indicates that there would be a $\underline{3} z$ percent reduction in daily employee vehicle trips due to microtransit, which equates to a reduction of $\underline{6} 4$ one-way employee vehicle trips. The resulting VMT reduction due to microtransit is $11 \underline{6}$ employee VMT.

Subtracting the $1 \underline{6} \mathbf{~ V M T}$ saved by microtransit from the 1,165 project-generated employee VMT yields a total increase of 1,14954 VMT associated with the proposed event venue employees. As the existing Casino Core employee VMT would decrease by $\underline{374266 \text {, the net increase in employee/service daily VMT }}$ within the Basin would be 775888 .

## VMT of Event Delivery/Service Vehicles - Maximum Event

All service trips are assumed to consist of new trips to the Tahoe Basin, in order to provide a conservative estimate. In reality some service stops at the TSEC will consist of existing trips already passing by the site for existing customers. As shown in Table 3.5-31, multiplying the weighted average trip length of 12.6 miles by the 100 project-generated daily delivery/service vehicle trips yields a total of 1,265 VMT in the Basin.

## VMT Generated by Parking Space Searching - Maximum Event

The VMT impact of drivers circulating for free parking is estimated for a summer day with a maximum concert event. Based on the number of visitors arriving to the Casino Core via private automobile (after the mode shifts resulting from paid parking and microtransit), approximately 1,649 daily 1-way trips are expected to generate an additional 0.5 miles of travel searching for free parking, for a total impact of 824 daily VMT.

TAHOE SOUTH EVENTS CENTER PROJECT EA TRANSPORTATION, PARKING AND CIRCULATION
TABLE 3.5-29

| VMT in Tahoe Basin - Visitor Trips - MAXIMUM CONCERT EVENT |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Weighted Average Trip Length (miles) ${ }^{1}$ |  |  | Daily Visitor Trips |  |  |  |  |  |  |  |  |
| Visitor Type | Length With Paid Parking \& Microtransit ${ }^{1}$ | Length Without <br>  <br> Microtransit | Length for Microtransit Reduction ${ }^{1}$ | Daily Vehicle <br> Trips Without <br>  <br> Microtransit | VMT Without Paid Parking \& Microtransit | Percent Reduction in Daily Vehicle Trips Due to Paid Parking | Change in <br> Daily <br> Vehicle <br> Trips Due to <br> Paid Parking | Reduction <br> in VMT Due <br> to Paid <br> Parking | Additional <br> Change in Daily <br> Vehicle Trips <br> Due to <br> Microtransit | Additional Change in VMT Due to Microtransit |  <br> Microtransit | Change in Daily Visitor VMT With Project |
| EXISTING VISITORS |  |  |  |  |  |  |  |  |  |  |  |  |
| Overnight Visitor - Lodged in Casino Core ${ }^{2}$ | 5.3 |  | -- | -- | -- |  | -157 | -832 | -- | -- | -832 | -832 |
| Overnight Visitor Lodged Elsewhere or Local Visitor | 7.1 |  | 1.9 | -- | -- |  | -1,136 | -8,066 | -315 | -599 | -8,665 | -8,665 |
| Day Visitor | 13.4 |  | -- | -- | -- |  | -1,927 | -25,822 | -- | -- | -25,822 | -25,822 |
| Total Existing Visitors |  |  |  |  |  |  | -3,220 | -34,720 | -315 | -599 | -35,319 | -35,319 |
| PROPOSED EVENT ATTENDEES |  |  |  |  |  |  |  |  |  |  |  |  |
| Overnight Visitor - Lodged in Casino Core ${ }^{3}$ | -- | -- | -- | 0 | -- | 0\% | 0 | -- | -- | -- | -- | 29,432 |
| Overnight Visitor Lodged Elsewhere or Local Visitor | 7.9 | 7.1 | 1.9 | 1,770 | 12,567 | 24\% | -425 | -3,358 | -24 | -46 | -3,404 | 9,163 |
| Day Visitor | 13.4 | 13.4 | -- | 1,995 | 26,733 | 20\% | -399 | -5,347 | -- | -- | -5,347 | 21,386 |
| Total Event Venue Visitors |  |  |  | 3,765 | 39,300 | 22\% | -824 | -8,705 | -24 | -46 | -8,751 | 59,981 |
| Note: Assumes same travel characteristics as summer design dayanalysis. Note: DVTE = Daily Vehicle Trip Ends |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Note 2: Considering both the regional access trip to the Tahoe Region as well as local trips made within the Region. |  |  |  |  |  |  |  |  |  |  |  |  |
|  made by new visitor groups over the course of the day. |  |  |  |  |  |  |  |  |  |  |  |  |
| Source: LSC Transportation Consultants, Inc. |  |  |  |  |  |  |  |  |  |  |  |  |

TABLE 3.5-30

| VMT in Tahoe Basin - Event Venue Employees - MAXIMUM CONCERT EVENT |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Daily Event Venue Employee Trips |  |  |  |  |  |  |  |
| Origin/Destination | Average Trip <br> Length <br> (miles) | Trip Distribution | DVTE Generated Without Paid Parking \& Microtransit | VMT Generated Without Paid Parking \& Microtransit | Distribution of Trips Shifting to Microtransit | Reduction in DVTE Due to Microtransit | Reduction in VMT Due to Microtransit | Total Project- <br> Generated <br> VMT With <br> Microtransit | Project Net <br> Impact on <br> Employee <br> Daily VMT ${ }^{1}$ |
| North Shore | 29.4 | 1\% | 2 | 65 | -- | -- | -- | 65 | 65 |
| West Shore | 27.4 | 0\% | 0 | 0 | -- | -- | -- | 0 | 0 |
| Echo Summit | 13.9 | 1\% | 2 | 32 | -- | -- | -- | 32 | 32 |
| Meyers/Pioneer Trail South | 9.4 | 6\% | 13 | 118 | -- | -- | -- | 118 | 118 |
| Tahoe Keys | 6.8 | 6\% | 12 | 84 | -- | -- | -- | 84 | 84 |
| Tahoe Valley | 5.8 | 13\% | 28 | 163 | -- | -- | -- | 163 | 163 |
| Bijou/Al Tahoe | 3.2 | 21\% | 46 | 147 | 36\% | -2 | -6 | 141 | -16 |
| Pioneer Trail North/Ski Run | 2.8 | 15\% | 32 | 90 | 41\% | -3 | -8 | 82 | -72 |
| Casino Core | 0.7 | 0\% | 0 | 0 | 0\% | 0 | 0 | 0 | 0 |
| Kingsbury | 1 | 3\% | 6 | 6 | 3\% | 0 | 0 | 6 | 2 |
| Kingsbury Grade (Daggett Pass) | 3.5 | 16\% | 35 | 121 | -- | -- | -- | 121 | 121 |
| Round Hill | $2.2$ | 7\% | 15 | 34 | 20\% | $-1$ | -2 | 32 | -27 |
| East Shore (North of Round Hill) | 6.6 | 0\% | 0 | 0 |  | -- | -- | 0 | 0 |
| Spooner Summit | 12.8 | 11\% | 24 | 305 | -- | -- | -- | 305 | 305 |
| Total | $5.4 \quad 2$ | 100\% | 216 | 1,165 | 100\% | -6 | -16 | 1,149 | 775 |
| Note: Assumes same travel characteristics as summer design dayanalysis. |  |  |  |  |  |  |  |  |  |
| Note: DVTE = Daily Vehicle Trip Ends. |  |  |  |  |  |  |  |  |  |
| Note 1: Project net impact on VMT is <br> Note 2: This is the weighted average <br> Source: LSC Transportation Consultants, | the sum of the proj trip length. <br> c. | ct-generated VM | MT and the reduction | in existing VMT. | duction in VMT | of existing emp | oyees is provid | in Table 3.5-21. |  |

TABLE 3.5-310: VMT in Tahoe Basin - Event Venue Delivery/Service Trip - MAXIMUM CONCERT EVENT

| Origin/Destination | Average Trip Length (miles) | Event Venue Delivery/Service Trips |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Trip Distribution | Daily 1-Way Vehicle-Trips | VMT |
| Brockway Summit | 33.2 | 5\% | 5 | 166 |
| Echo Summit | 13.9 | 20\% | 20 | 278 |
| Kingsbury Grade (Daggett Pass) | 3.5 | 15\% | 15 | 53 |
| Spooner Summit | 12.8 | 60\% | 60 | 768 |
| Total | 12.6 | 100\% | 100 | 1,265 |

Note: Assumes same travel characteristics as summer design day analysis.
Note: DVTE = Daily Vehicle Trip Ends.
Note 1: This is the weighted a verage trip length.
Source: LSC Transportation Consultants, Inc.

## SUMMARY OF VMT IMPACTS WITH MAXIMUM CONCERT EVENT

The VMT impacts are summarized in Table 3.5-321. As shown, the proposed project and paid parking/microtransit programevent venue is estimated to generate an increase of approximately 6233,587061 daily VMT $;$, with an additional 344 VMT generated by the proposed microtransit shuttle vehicles, for a total increase of 33,061 VMT. This increase in VMT would be offset by the reduction of 35,693391 existing VMT due to paid parking and microtransit. Summing the two figures and adding 824 VMT generated by parking space searching yields a net dinecrease of $\underline{27} \underline{2}, \underline{718} 330$ VMT in the Tahoe Basin over the course of the summer designmaximum event day (outside of summer peak period).

Alternatives A and C (without paid parking and microtransit) are estimated to generate a total of approximately $17,30 \underline{6} 3$ VMT $(16,382 \mathrm{VMT}$ generated by event attendees plus $41 \underline{9} 6 \mathrm{VMT}$ generated by event venue employees/staff plus 505 VMT generated by delivery/service vehicles) on the summer design day. The VMT impacts under Alternative $B$ would be similar to that of Alternatives $A$ and $C$. As this exceeds the performance standard of no net increase in VMT, this is a significant impact.

Table 3.5-32

| South Tahoe Events Center - VMT Summary Maximum |  |
| :--- | :---: |
| Concert Event REVISED |  |
|  | Daily |
| Description | VMT |
| MAXIMUM CONCERT EVENT |  |
| Attendees | 59,981 |
| Employees | 775 |
| Delivery/Service | 1,265 |
| Total Proposed Venue | 62,021 |
| PROPOSED MICROTRANSIT SHUTTLE TRIPS | 566 |
| TOTAL WITH MAXIMUM CONCERT EVENT (Including paid parking \& microtransit) | $\mathbf{6 2 , 5 8 7}$ |
| REDUCTION IN EXISTING VMT (DUE TO PAID PARKING \& MICROTRANSIT) |  |
| Visitors | $-\mathbf{- 3 5 , 3 1 9}$ |
| Employees | -374 |
| Total Reduction in Existing VMT | $\mathbf{- 3 5 , 6 9 3}$ |
| VMT GENERATED BY PARKING SPACE SEARCHING | $\mathbf{8 2 4}$ |
| PROJECT NET IMPACT ON VMT IN TAHOE BASIN | $\mathbf{2 7 , 7 1 8}$ |

Note: Assumes same travel characteristics as summer design day analysis.
Source: LSC Transportation Consultants, Inc.

## Mitigation

As the proposed TSEC use is estimated to generate a total of approximately $17,3063 \mathrm{VMT}(16,382 \mathrm{VMT}$ generated by event attendees plus 416 VMAT generated by event venue employees/staff plus 505 VMI generated by delivery/service vehiclest on the summer design day before reductions are taken for paid parking and microtransit programs proposed by the Project, mitigation measures and monitoring procedures outlined below are required to ensure that the paid parking program and microtransit service (or alternatives developed through coordination with the Main Street Management Plan process) are effective in achieving a net zero increase (or a net reduction) in VMT.

Traffic reduction measures proposed by the Project to meet the performance standard of no net increase in VMT follow and will be coordinated and integrated with the upcoming Main Street Management Plan (MSMP) process to ensure their efficacy:

- Year-Round Paid-paid parking program (results in a $1.8 \%$ reduction in existing peak summer VMT in the Tahoe Basin that offsets all new VMT generated by a summer event).
- Microtransit shuttle service (0.05z\% additional reduction in existing of peakssummer VMT in the Tahoe Basinby a-summer event) that operates peak summer and winter (June 15 through

Labor Day weekend and December 1 through April 1) in year 1 operations and moves to yearround operations by year 6 .

- A new bus pullout on U.S. 50 with a shelter near the main entrance of the proposed event venue building.
- Project contributions to transportation infrastructure improvement projects. Pursuant to Section 65.2 .5 of the TRPA Code of Ordinances, TRPA assesses an air quality mitigation fee to offset regional and cumulative impacts of a change in operation. Specific regional and local VMT reduction strategies covered by the fee include, but are not limited to transit facility construction, transportation systems management measures and transfer and retirement of offsite development rights.


## Potential Additional Measures

Additional transportation demand management (TDM) measures may be required to meet the performance standard and shall be integrated with the upcoming MSMP process. Potential additional measures that may need to be considered as part of coordinating with the MSMP process or from monitoring results of proposed project traffic reduction measures are as follows:

- The maximum event size during summer peak periods could be reduced, or the total number of allowable events during summer peak periods could be limited.
- Coordinate event dates with large-scale events held at the Harvey's outdoor arena to avoid overlap with large events at the TSEC or consider reductions to the number of annual events held at the outdoor arena.
- The lack of public transit service after 8:00 PM could be addressed. For instance, the microtransit program could be augmented at the end of major events (over 500 attendees) to ensure that exiting transit riders can be adequately accommodated. The specific level of service will vary depending on specifics of the event (size of event, those generating a high proportion of local or day visitors vs. those generating a high proportion of overnight visitors, timing of the event, lodging packages marketed as part of the event, etc.). The microtransit app should be used to group passengers and organize bus trips to best serve the specific demand of the individual event. Service should be designed to attain a standard of an average wait time of no more than 15 minutes and a maximum wait time of 30 minutes.
- Lodging and event marketing materials could clearly define the required parking fees (separate from the room rate or event ticket cost) and could also provide information regarding alternative forms of transportation.
- Secured bicycle parking could be provided as part of the Events Center facility.
- Employee showers and locker rooms could be provided.
- The TSEC Facility management could designate an Employee Transportation Coordinator (ETC), responsible for implementation and All employees could be informed as to the availability of free transit service.
- Casino Core paid parking revenues could be used to provide free TTD bus passes for Casino Core employees. All employees would then be informed as to the availability of free transit service.
- Alternative transportation information could be provided to all employees.
- A single rideshare matching program could be implemented for employees of all Casino Core major employers.
- The TSEC management firm could be a member of the South Shore Transportation Management Association.
- The TSEC Project could potentiallyprovide a transit capacity improvement to reduce traffic on U.S. 50. For example, the TSEC Project could provide the subsidy cost (payment to TTD) for an additional fixed route bus operating during the peak summer and winter seasons. Or, the TSEC Project could provide payments to TTD to offset the loss of revenue associated with making some or all TTD routes free to the rider. (This is also a potential mitigation measure under roadway LOS impacts.)
- Event marketing materials could encourage the use of public transit and non-auto access to the event.
- Preferential carpool/vanpool parking.
- Dedicate land for bike trails.
- Employer-sponsored vanpool/shuttle.
- Parking supply could be managed to reduce the convenience of auto access to the site. This could include expansion of carpool/vanpool parking, or reduction in total parking supply. Any spillover parking would need to be controlled, such as via parking restrictions or on-street market rate parking.
- Participation in offsite/out of basin parking efforts to facilitate transit.

The mitigation measures referenced above and refined as part of the Project conditions, or other similar measures_would meet the requirements of TRPA Code of Ordinance Section 65.5.2 (Employer-Based Trip Reduction Program). In addition, the transportation demand management measures shall be required to be integrated with the upcoming MSMP process.

In summary, there are combinations and levels of the above described mitigation measure strategies that would inarguably-offset new VMT generated by the TSEC Project. As, such with implementation of the project proposal or modifications developed through coordination with the MSMP process, this impact would be considered less than significant.

## Monitoring and Adaptive Management Plan

A mitigation monitoring plan that includes the recommendations below or methods refined as part of Project conditions will be required to document the benefits of the paid parking and microtransit programs. A typical means of monitoring the transportation effects of a proposed project is to conduct traffic counts and compare total traffic before and after construction of a project. In the case of the TSEC, however, there are several factors that merit consideration:

- A count program would need to be extensive, as there are a total of 17 vehicular access points into the casino properties. Data from Streetlight or other similar transportation data could also be used to replace or supplement traffic counts.
- Even if all 17 driveways were counted (over multiple days), this would not encompass all vehicle-trips generated by the casino core, as some employees and guests traveling to the casinos park outside the casino parking lots. (This is expected to increase with paid parking.) Simply counting vehicles parked in nearby on-street or other parking areas outside the core would not provide a quantitative value of casino-generated traffic volumes, as these vehicles would be mixed with trips generated by other land uses.
- There are many factors beyond paid parking, expanded transit services and other TDM strategies that can impact traffic volumes generated by the casino core, such as the following:
o Changes in the local and regional economy.
o Changes in gasoline prices.
o Marketing programs.
o Changes in competing gaming properties (such as the closure of a competing property).

These other factors may well have impacts greater than the impacts of TDM strategies.

As a result of these factors, a numeric vehicle-trip count monitoring standard would not be an effective measure of the results of TDM measures by itself. Instead, a non-auto-driver travel mode standard is recommended, defined as the proportion of all casino person-trips over a busy summer day that occur without generating an additional private vehicle-trip (including auto passengers). The TRPA has for many years conducted summer travel mode surveys at key recreational/commercial activity centers around the Tahoe Region, including the casino core area. Most recent summer surveys were conducted in 2010, 2014 and 2018. These surveys provide the basis for an existing proportion of travelers to the casino core that are not auto drivers.

Additional surveys could be conducted in the summer of 2020 not only to best define a "before Events Center" condition, but also to compare conditions in the years after implementation of formal paid parking at the major casinos to conditions without paid parking.

The Monitoring Plan could include the following components:

- Facility Management could provide funding to TRPA to fund expanded annual peak summer Mode Share Surveys for the Casino Core area over three summers. These surveys could be designed to identify individual's travel mode to the casino core (including those driving to the immediate vicinity and walking to the casino core). The results could be analyzed to identify the proportion of total person-trips by the following modes:
o Private auto driver
o Private auto passenger
o Walking
o Bicycle/scooter/other personal mobility device
o Transportation Network Company/Taxi passenger
o Public transit
o Private shuttle/bus service

Survey results could be compared to an analysis of previous surveys to identify trends in the ratio of auto vehicle-trips to the casino core to the total person-trips. The goal of the TDM program could be to reduce in this ratio by a specific percentage.

Facility Management could utilize a neutral party to conduct surveys of attendees at TSEC events for a minimum of three years, similar in scope to those currently conducted for the Harveys/Harrah's outdoor concert events.

- An annual survey of employee commute patterns could be conducted for the casino core major employers.
- Microtransit services could be monitored with regards to ridership, wait times, on-time performance and capacity issues. Passenger surveys could be conducted to identify trip purpose, demographics and other factors. An annual report could be prepared and provided to the public agencies that summarizes this data and identifies strategies to address deficiencies.

This monitoring approach will facilitate an adaptive management strategy that will allow for changes to the paid parking and microtransit programs in coordination with the public permitting and transit providing agencies in reaction to the monitoring results.

Additional traffic reduction measures from the list above would be necessary to achieve a net zero impact on VMT under Alternatives $A, B$ and $C$, as these alternatives do not include a paid parking program and microtransit service.

## PARKING

Impact: The Proposed Project would generate a maximum parking demand of approximately 1,470 additional spaces associated with a maximum-sized concert, assuming summer travel characteristics. Alternatives A, B and C would generate a maximum parking demand of approximately 1,890 additional spaces associated with a maximum-sized concert, assuming summer travel characteristics. The existing parking supply in the casino core area well exceeds the demand throughout the year. As the existing

## parking supply in the casino core area can accommodate this demand on any day of the year without another large special event, no parking deficiencies are expected. However, under the Proposed Project with paid parking, neighborhood parking impacts would occur.

Analysis: First, the parking demand of the proposed project is estimated, assuming the anticipated program. Next, the existing and proposed parking supply at MontBleu is analyzed, and the parking supply at other gaming properties in the casino core area is estimated. Finally, the overall parking balance with the proposed project is evaluated.

## Parking Demand

The parking demand analysis for the proposed TSEC is based upon expected attendee and employee levels and a review of available information regarding travel characteristics in the vicinity. The analysis of a maximum concert event is presented in Table 3.5-33z and reflects the following steps:

1. A maximum concert event would have up to 6,000 attendees.
2. The applicant indicates up to approximately 225 employees would be associated with a peak event, including food and beverage services. In addition, up to 12 full-time employees may be associated with the proposed project, including full-time event center employees and staff associated with other offices on site (such as the Tahoe Chamber of Commerce and Lake Tahoe Visitors Authority).
3. The factors for (1) the proportion of persons accessing the TSEC by auto and (2) the average vehicle occupancy of those accessing by auto are based on the assumptions in the trip generation analysis for the summer design day.
4. Next, the proportion of attendees that will be overnight visitors (non-Tahoe residents staying overnight in Tahoe), day visitors (such as Reno/Carson City residents attending an event without staying overnight) and local Tahoe Basin residents. These proportions were based upon data from the summer concert surveys and information discussed in the Feasibility Study, as well as the relative population of the Tahoe Basin versus other areas within a reasonable drive distance for a day trip. As shown in Table 3.5-34, these proportions vary significantly, reflecting the differing markets for the various types of events.
5. Multiplying the number of persons by the auto mode proportion and dividing by the average vehicle occupancy yields the number of peak parked vehicles for attendees (including vendors) and employees. Summing them provides the total peak parking demand for a maximum concert event of approximately 1,470 spaces as shown in Table 3.5-33.

## Parking Demand on Summer Design Day

The parking demand on a busy summer day with a 2,500-attendee event (the "design day") is summarized in Table 3.5-35. As shown, the attendees are estimated to generate a parking demand of approximately 570 spaces. Adding 35 spaces for venue employees plus 5 spaces for full-time employees assumed to be on-site during the event yields a total parking demand of 610 spaces.

TABLE 3.5-332: Events Center - Parking Demand Analysis - Maximum Concert Event

|  | Number of Persons onsite at Peak Time | Auto Travel Mode | Average Vehicle Occupancy | Maximum Parking Demand |
| :---: | :---: | :---: | :---: | :---: |
| Maximum Concert Event |  |  |  |  |
| Attendees | 6,000 | 63\% | 2.77 | 1,360 |
| Venue Employees | 225 | 55\% | 1.30 | 100 |
| Full-Time Employees | 12 | 55\% | 1.30 | 10 |
| Total | 6,237 |  |  | 1,470 |
| Note: Assumes same travel characteristics as summer design day analysis, including paid parking and microtransit. Source: LSC Transportation Consultants, Inc. |  |  |  |  |

TABLE 3.5-343: Estimated Attendee Proportions by Event Type

|  | Event Type |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Conventions an Conferences | Corporate Events | Concerts and Entertainment ${ }^{1}$ | Public/ Consumer Shows | Sporting Events |
| Overnight Visitors | 85\% | 97\% | 57\% | 10\% | 70\% |
| Day Visitors | 10\% | 2\% | 28\% | 70\% | 20\% |
| Local Residents | 5\% | 1\% | 15\% | 20\% | 10\% |
| Note 1: Attendee proportion | ss for concerts/entertainm | ent events are ba | sed on LTVA 2017 summe | oncert survey data. |  |

## Existing MontBleu Parking Supply

MontBleu currently has a total of 1,494 parking spaces (660 in the garage plus 834 surface spaces, including porte cochere areas). To provide the basis for an evaluation of available parking at MontBleu, parking counts were conducted for all parking spaces (garage and surface) at MontBleu on Saturday, August 12, 2017, from noon through 8:00 PM. The results are summarized in Table 3.5-365, and the count data is contained in Appendix F-7. The results indicated a maximum existing parking demand (at 8:00 PM) of approximately 753 spaces. This is equivalent to approximately 50 percent of the available spaces. Note that the paid parking program at the casinos was not in effect at the time of the parking counts.

TABLE 3.5-35: Events Center - Parking Demand Analysis on Summer Design Day - Proposed Project

|  | Number of Persons onsite at Peak Time | Auto Travel Mode | Average Vehicle Occupancy | Maximum Parking Demand |
| :---: | :---: | :---: | :---: | :---: |
| Summer Design Day |  |  |  |  |
| Attendees | 2,500 | 63\% | 2.77 | 570 |
| Venue Employees | 75 | 55\% | 1.30 | 35 |
| Full-Time Employees | 10 | 55\% | 1.30 | 5 |
| Total | 2,585 |  |  | 610 |
| Source: LSC Transportation Consultants, Inc. |  |  |  |  |

With implementation of the proposed paid parking program and microtransit service, the existing peak parking demand at MontBleu is expected to decreased by about 80 cars, for a total demand of 673 spaces.

## Proposed MontBleu Parking Supply

With implementation of the project, the total number of surface parking spaces would be reduced by 468. This would bring the MontBleu parking space total down to 1,026 ( 1,494 minus 468 ) and indicates that at 100 percent occupancy 353 spaces ( 1,026 minus 673 ) would be available at MontBleu for TSEC parking. As such, the proposed on-site parking supply could accommodate over half ( 58 percent) of the demand of a 2,500 -attendee event during periods with 100 percent occupancy at MontBleu. Off-site parking would need to be provided for a 2,500-attendee event during periods with peak occupancy rates.

## Parking Supply at Other Gaming Properties in Summer Months

As currently occurs for large events in the area (for example, Harvey's outdoor concerts), off-site parking for the proposed event center will be coordinated with the surrounding properties. Excess parking spaces are potentially available at the other three major South Shore gaming properties (Harvey's, Harrah's, and Hard Rock). TRPA staff conducted a walkshed analysis using a $1 / 4$ mile and $1 / 2$ mile network and buffer. The existing parking supply in the casino core area was inventoried during August 2017. Parking counts were conducted on two busy summer evenings without a Harvey's concert event and without paid parking (Friday and Saturday, August 11-12, 2017), in order to capture a "snapshot" of parking availability for the proposed MontBleu events. Additionally, parking counts were conducted during a very large concert event (The Who) on Wednesday, August 16, 2017, in order to capture parking conditions when paid parking is in effect. Specifically, starting at roughly 8 PM (and shortly after the headliner took the stage on the concert day), every car parked in the casino core was counted, as well as in the lakeside neighborhood on the California side, including the following locations:

- The 4 major casinos
- Parking lot behind Dotty's
- On-street spaces on Lake Parkway, Stateline Ave, Bellamy Ct, and Transit Way

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- On-street spaces on each side-street between Stateline Avenue and Park Avenue on the lake side of the highway
- Public parking structure at the corner of Heavenly Village Way/Bellamy Court
- Paid parking lot behind Raley's

Additionally, vehicles with "tailgaters" were counted in the Hard Rock lot and along Lake Parkway, Stateline Avenue, and adjacent on-street areas. Note that counts at the public parking garage were only conducted during the concert event. The results are summarized in Table 3.5-376, and the detailed parking count data for each property is provided in Appendix F-7.

TABLE 3.5-365: Montbleu Parking Counts and Spaces Available for Events Center Parking

| Hour | Garage | Surface | Total |
| :--- | :---: | :---: | :---: |
| Capacity | 660 | 834 | 1,494 |
| Parking Count |  |  |  |
| 12:00 PM | 175 | 314 | 489 |
| 1:00 PM | 199 | 315 | 514 |
| 2:00 PM | 208 | 377 | 585 |
| 3:00 PM | 202 | 402 | 604 |
| 4:00 PM | 246 | 421 | 667 |
| 5:00 PM | 249 | 429 | 678 |
| 6:00 PM | 270 | 435 | 705 |
| 7:00 PM | 295 | 458 | 753 |
| Percent Utilization |  |  |  |
| 12:00 PM | $27 \%$ | $38 \%$ | $33 \%$ |
| 1:00 PM | $30 \%$ | $38 \%$ | $34 \%$ |
| 2:00 PM | $32 \%$ | $45 \%$ | $39 \%$ |
| 3:00 PM | $31 \%$ | $48 \%$ | $40 \%$ |
| 4:00 PM | $37 \%$ | $50 \%$ | $45 \%$ |
| 5:00 PM | $38 \%$ | $51 \%$ | $45 \%$ |
| 6:00 PM | $41 \%$ | $52 \%$ | $47 \%$ |
| 7:00 PM | $45 \%$ | $55 \%$ | $50 \%$ |
| Spaces Eliminated by Proposed Facility |  |  | -468 |
| Total Spaces After Event Facility Constructed |  |  | 1,026 |
| Available Spaces After Event Facility Constructed: $100 \%$ Occupancy | 273 |  |  |
| Note: Counts conducted Saturday, August 12, 2017. |  |  |  |
| Source: LSC Transportation Consultants, Inc. |  |  |  |

## TABLE 3.5-376: Parking Counts Summary

TOTAL PARKING


Note 1Total legal spaces excludes the private Wells Fargo Lot, as it may not be available in the future.

As shown, the total parking supply (including MontBleu) is over 8,100 spaces. The highest number of parked cars was approximately 4,798 , which occurred during the concert event. The results indicate that the casino core area parking spaces are only roughly 50 to 60 percent occupied on busy summer evenings, with or without a concert event. As indicated in the far right column of the table, approximately 3,325 parking spaces are estimated to be available in the casino core during a large concert event and at least 3,900 spaces without a concert event. That is, the existing parking supply well exceeds the demand during the summer months. Note that the parking spaces in the neighborhood south/west of Stateline that are currently in use during Harvey's concert events would likely be less-used by TSEC attendees, given the longer walking distance to the TSEC compared to the Harvey's outdoor venue. Consequently, tailgating is also less likely to occur in this neighborhood before/during TSEC activities.

## Parking Supply at Other Gaming Properties in Non-Winter Months

The existing parking supply in the casino core area during non-winter months is also evaluated. As shown in Table 3.5-387, the other three major gaming properties can accommodate up to approximately 5,381 vehicles in the non-winter seasons. Subtracting the parking demand from the available parking supply, at peak occupancy there are an estimated 2,384 unused spaces in the nonwinter seasons at the other three major gaming properties.

## Comparison of Demand and Available Supply

Table 3.5-389 provides a comparison of the parking demand with the potential supply, assuming 100 percent hotel occupancy. The net balance (supply minus demand) is identified. A review of this table indicates that Including all available unused spaces at the other three major properties, there would be a net positive parking balance for all potential types of events. Even with the event type of greatest parking demand (a maximum concert event in the winter season), at least 1,187 unused spaces would still be available among the four properties. This figure does not account for the increase in parking availability at the four properties as a result of the proposed paid parking program and microtransit service.

TABLE 3.5-38: Existing Parking Spaces at Other Stateline Gaming Properties

| Property | Existing <br> Parking Supply | Estimated Parking <br> Demand at 100\% <br> Occupancy ${ }^{1}$ | Excess Parking Availability at 100\% Occupancy ${ }^{2}$ |
| :---: | :---: | :---: | :---: |
| Harrahs |  |  |  |
| Total | 1,718 | 1,077 | 641 |
| Harveys |  |  |  |
| Total - Non-Winter | 2,313 | 1,161 | 1,152 |
| Hard Rock Casino |  |  |  |
| Total | 1,350 | 759 | 591 |
| TOTAL - Non-Winter | 5,381 | 2,997 | 2,384 |
| Note: Excludes porte cochere and bus parking. |  |  |  |
| Note: Includes space that is planned or under construction |  |  |  |
| Note 1: Based on observed demand on busy summer evening (Aug 11-12, 2017) without concert event. |  |  |  |
| Note 3: Assuming no special events occupying parking or generating parking demand. |  |  |  |
| Source: LSC Transportation Consultants, Inc. |  |  |  |

TABLE 3.5-39: Comparison of Events Center Parking Demand and Supply

| Type of Event | Parking Demand | Parking Balance at 100\% Occupancy -Excess Available Spaces ${ }^{1}$ |  |
| :---: | :---: | :---: | :---: |
|  |  | Montbleu Only | All 4 Major Casino Properties |
|  | Non-Winter | Non-Winter | Non-Winter |
| Concerts and Entertainment |  |  |  |
| Note 1: Does not reflect additional parking availability due to proposed paid parking and microtransit service. <br> Source: LSC Transportation Consultants, Inc. |  |  |  |

Comparing this figure with the available unused parking at the three other properties, it can be concluded that for the largest events, off-site parking would not necessarily be needed at all three other properties (even with 100 percent occupancy at these other properties). The number of other properties that would be involved, as well as the level of occupancy at these other properties.

While the figures in Table 3.5-389 present the "worst case" reflecting 100 percent occupancy of the existing hotel, occupancy in much of the year (particularly on weekdays) would provide additional unused existing parking for TSEC use. With additional information regarding daily and monthly variation in occupancy and activity levels at the major gaming properties, it would be possible to develop a detailed TSEC management strategy. This could take advantage of the available parking in off-peak periods to minimize the need for and complexity of off-site parking, and optimize the scheduling of larger events.

## Neighborhood Parking Impacts

The project impact on neighborhood street parking conditions is evaluated. The parking snapshot counts indicate at least 216 free, legal on-street parking spaces are available along the neighborhood streets located in California on the lake-side of US 50 on a busy summer evening (without a Harvey's concert event). It can be expected that, absent any active parking control program, these spaces would be used by Events Center motorists shifting from the casino properties due to paid parking. This is considered a potentially significant impact.

Although Alternatives A, B and C would have a greater parking demand than the Proposed Project, the parking supply in the casino core can accommodate this demand. Note that the on-site parking supply under Alternative B would be different than the other alternatives based on its location outside of the existing surface parking area.

Mitigation: A parking management and monitoring plan shall be prepared and implemented with applicable City and County jurisdictions to address potential neighborhood parking impacts.

## TRANSIT

Impact: The project could potentially result in a surge in transit demand at event start and end times. However, the potential increase in ridership is expected to be accommodated with the existing transit system and proposed microtransit service. Furthermore, the existing TTD and proposed microtransit systems have adequate capacity to accommodate the new passengers shifting from the auto mode. The project proposes to relocate the existing eastbound bus stop on U.S. 50 farther to the east, near the main entrance of the proposed Events Center building. In addition, a new bus pullout would be provided at this location, along with a shelter. Adequate transit conditions are expected to be provided with the project.

Analysis: The impact of the proposed project on transit systems and facilities is evaluated. There are two major transit centers in the area: the Stateline Transit Center on Transit Way at Embassy Suites, and the Kingsbury Transit Center at the Douglas County offices/Kahle Park. Neither of them is physically affected by this project. There will be a need for a bus stop that serves the proposed TSEC. The project proposes to relocate the existing bus stop in front of MontBleu farther to the east, near the main entrance of the proposed TSEC building. The project plans include a new eastbound bus pullout (with a shelter) at this location.

With implementation of the project, there could potentially be a surge in transit demand at event start and end times. Transit passengers would be paying transit fares to help support the transit system. However, based on the results of the summer concert surveys, none ( 0 percent) of the event attendees arrive via public transit, and only a small portion (approximately 7 percent) get to the venue via Uber/Lyft/taxi, hotel shuttle, or private shuttle. As such, the proposed project would not be expected to overwhelm the existing transit system with large increases in ridership. Additionally, as discussed in the trip generation analysis, the existing TTD and proposed microtransit systems have adequate capacity to accommodate the new passengers shifting from the auto mode.

With the project, there may be a need to re-align transit routes, but this cannot be determined until a later stage of the project. Adequate transit conditions are expected with the project.

Alternatives A, B and C have the same conclusions as the Proposed Project.
Mitigation: No mitigation is required.

## PEDESTRIAN/BICYCLIST

Impact: The Proposed Project, Alternative A and Alternative C would provide adequate pedestrian and bicycle facilities. Alternative B would provide poor pedestrian connectivity.

Analysis: The existing and proposed pedestrian walkways provide connectivity throughout the site as well as to the casino core. The existing sidewalks and bike lanes along Lake Parkway are consistent with the proposed transportation network identified in the Tourist Core Area Plan. Bike racks are proposed to be provided near the TSEC building entrance, consistent with Area Plan policy (Policy T-2.4). As such, the proposed project is considered to provide adequate pedestrian and bicycle facilities.

Alternatives $A$ and $C$ would also provide adequate pedestrian and bicycle conditions. However, Alternative B would provide poor pedestrian connectivity, as pedestrians must navigate through the parking lot or casino to travel between US 50 and the TSEC entrance.

Mitigation: No mitigation is required.

## CONSTRUCTION TRAFFIC

Impact: $\quad$ The project would result in temporary construction traffic. Onsite construction staging areas would be established to minimize heavy equipment trips on surrounding roadways. This impact would be less than significant.

Analysis: During the earthwork phase, the amount of cut is expected to outweigh the fill, resulting in material off-hauling activities. Also, structural fill material may be imported, generating additional truck hauling trips. A Traffic Control Plan (TCP) will be developed by the applicant in coordination with TRPA, NDOT and Douglas County staff prior to construction activities. The TCP would address project construction traffic and parking. At a minimum, the plan would address truck haul routes, truck turning movements at the project driveway(s), traffic control signage, bicycle and pedestrian traffic, restriction of hauling activities to off-peak periods, on-site circulation and staging areas, and monitoring of the in-place traffic control to implement traffic control revisions if necessary.

The impacts would be the same under Alternatives $A$ and $C$. Under Alternative $B$, there would be more excavated material to be hauled off the site.

Mitigation: No mitigation is required.

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[^0]:    ' For purposes of this discussion, the Casino Core is defined as the area in Nevada encompassed by Lake Parkway (east and west) and the California/Nevada state line.

[^1]:    ${ }^{2}$ No quantitative before-and-after studies of traffic impacts have been conducted for other mountain resort commercial centers such as Aspen, Park City or Breckenridge that have implemented paid parking over the last 20 years.

[^2]:    ${ }^{3}$ For instance, in simple terms an elasticity factor of -0.53 indicates that a 100 percent increase in parking charges would result in a 53 percent reduction in parking demand. The larger the absolute value of the elasticity factor, the more sensitive demand is to price. These figures are based on the cost of parking, not the total cost of a visitor trip. Also note that elasticity cannot be directly applied to the Stateline analysis, as a percentage increase cannot be calculated for the imposition of a cost on a previously free good or service.

[^3]:    - Note that direct application of the elasticity factors discussed above to this change in total trip costs is not valid, as the observed elasticity factors were based on change in parking charge only, not change in total trip cost.

[^4]:    ${ }^{s}$ This document presents survey results in which summer visitors were asked to rank the importance of various factors in their decision to make a trip to Tahoe, on a scale of 1 (most important) to 5 (not at all important). Scenic beauty ranked highest at 1.1 and "the lake itself" was 1.3, while gaming rated an average score of 3. This document also indicates that 32 percent of summer visitors to the South Shore area are day visitors.

[^5]:    The 16 percent figure defined for the sum of local residents and visitors staying elsewhere in Tahoe is consistent with data provided by MontBleu staff, which indicates that 11 percent of total casino customers are local Tahoe residents and the remaining 89 percent are visitors.

[^6]:    : "Elasticity" is the microeconomic concept that relates the change in demand for a good or service to the change in cost of that good or service, and is a standard methodology for evaluating the ridership impact of a change in service levels or fare.

[^7]:    ${ }^{9}$ As discussed above, the microtransit ridership analysis does not include a factor for the ridership reductions associated with paid parking. The total impact of microtransit and paid parking can therefore be identified by simply adding the two figures.

