EAST HARBOR ISLAND REDEVELOPMENT/TOPGOLF PROJECT

Vehicle Miles Traveled Assessment

JUNE 2026

Prepared For

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Executive Summary

The purpose of this Vehicle Miles Traveled (VMT) Assessment is to document the VMT assessment conducted for the proposed East Harbor Island Redevelopment/Topgolf Project (the "Proposed Project"). The analysis is based on the recently revised (January 2023) State California Environmental Quality Act (CEQA) Guidelines and the guidance provided in the *Technical Advisory on Evaluation Transportation Impacts in CEQA, December 2018 (OPR Technical Advisory)*, authored by the Governor's Office of Planning and Research (OPR).

Project Description

The East Harbor Island Redevelopment/Topgolf Project and Port Master Plan Amendment plans to redevelop portions of East Harbor Island. The Project site is approximately 38 acres of land generally bounded to the north by North Harbor Drive and the San Diego International Airport, to the west by Harbor Island Drive, to the south by Liberator Way and the East Basin portion of San Diego Bay, and to the east by the Convair Lagoon portion of San Diego Bay. Approximately 19.9 acres of the Project site is planned for redevelopment (East Harbor Island redevelopment area). The Project site is currently occupied by the San Diego Harbor Police headquarters; Avis, Enterprise, and Hertz rental car companies; and San Diego International Airport temporary construction staging facilities. Existing structures on site include several one- and two-story buildings, various small structures, surface parking lots, fencing, and limited vegetation. Much of the Project site shoreline is covered with a combination of riprap and concrete and asphalt sloped pavement.

Project components include demolition and removal of existing structures and improvements, realignment of Liberator Way, redevelopment of approximately 10 acres for the Topgolf entertainment complex (108 hitting bays), a parking lot with approximately 289 parking stalls, and development of a new waterfront park and promenade (approximately 10.1 acres). The existing San Diego Harbor Police headquarters located on the western side of East Harbor Island would remain in place.

This VMT Analysis will focus primarily on the Topgolf and Park (open space) portion of the development, as well as on the realignment of Liberator Way.

Trip Generation

Given the distinct land use and operations of the Topgolf facility, the standard trip generation rates from the City of San Diego's and the Institute of Transportation Engineers' (ITE) manuals were deemed inapplicable, prompting further research for an accurate rate. This investigation led to the utilization of trip generation rates derived from August 2014 traffic studies at an existing Topgolf location in Scottsdale, Arizona, a site uniquely suited for such analysis due to its singular land use. These rates, based on the number of golf hit bays, were then applied to estimate the Topgolf Project's trip generation, ensuring a tailored approach to understanding its transportation impact.

The project is expected to generate approximately 2,449 average daily trips (ADT), with 100 AM (63-in/37-out), and 241 PM (121-in/120-out) peak hour trips.

VMT Screening Criteria

The VMT analysis for this project was conducted following the State's OPR guidance. The OPR Technical Advisory recommends that mixed-use projects, like the one proposed, should assess each land use component separately. This is because lumping together various land uses and applying a single threshold could lead to an inaccurate evaluation of impacts. Consequently, VMT screening for this project was carried out individually for both the Park (Open Space) portion and the Topgolf portion.

The OPR's technical advisory suggests that lead agencies may screen out VMT using project size, land use type, maps, transit availability, and provision of affordable housing. Many agencies use these screening thresholds to quickly identify when a project should be expected to cause a less-than-significant impact without conducting a detailed study, and these criteria are identified below:

- Small Project – Projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact.
- Map-Based Screening for Residential and Office Projects – Residential and office developments in low Vehicle Miles Traveled (VMT) areas, characterized by high density, mixed uses, and good transit access, are likely to maintain low VMT, allowing the use of VMT data maps as a screening tool to exempt such projects from detailed VMT analysis.
- Presumption of Less Than Significant Impact Near Transit Stations – Projects within half a mile of major transit stops, encompassing residential, retail, and office uses, are expected to have less than significant impact on VMT.
- Presumption of Less Than Significant Impact for Affordable Residential Development – Integrating affordable housing into infill locations enhances the jobs-housing balance, thereby shortening commutes and reducing Vehicle Miles Traveled (VMT), with low-income housing producing less VMT than market-rate housing and are expected to have a less than significant VMT impact.
- Locally Service Retail or Locally Serving Facilities: Because new retail and new public facility development typically redistributes existing trips rather than creating new trips, estimating the total change in VMT is the best way to analyze a retail project's transportation impacts. Locally serving retail and locally serving public facilities tend to improve destination proximity, shorten trips, and reduce VMT. Thus, locally serving retail and public facilities are presumed to have a less than significant VMT impact.

- Transportation Projects: A transportation project which leads to additional vehicle travel on the roadway network, commonly referred to as "induced vehicle travel", would need to quantify the amount of additional vehicle travel in order to assess air quality impacts, greenhouse gas emissions impacts, energy impacts, and noise impacts. OPR's Technical Advisory provides a list of transportation projects that would not likely lead to a substantial or measurable increase in vehicle travel, and therefore generally should require an induced travel analysis. However, listed below is the type of project category most relevant for the purposes of the analysis documented in this report:
    - Rehabilitation, maintenance, replacement, safety, and repair projects designed to improve the condition of existing transportation assets (e.g., highways; roadways; bridges; culverts; Transportation Management System field elements such as cameras, message signs, detection, or signals; tunnels; transit systems; and assets that serve bicycle and pedestrian facilities) and that do not add additional motor vehicle capacity.

Projects that are not screened out should conduct a detailed VMT analysis.

Park (Open Space) Screening

While neither a "local or regional public facility" category is included in OPR's Technical Advisory screening criteria, the technical advisory does state the following for local serving land uses, such as local serving retail:

> *"Because new retail development typically redistributes shopping trips rather than creating new trips, estimating the total change in VMT (i.e., the difference in total VMT in the area affected with and without the project) is the best way to analyze a retail project's transportation impacts. By adding retail opportunities into the urban fabric and thereby improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT. Thus, lead agencies generally may presume such development creates a less-than-significant transportation impact."*

However, the park/open space portion of the Project is expected to generate new trips, as it would be a unique park space within the San Diego Bay that aims to enhance coastal access, become a top waterfront destination, and create a "Welcome to the Bay" experience. This could potentially increase the travel distance for users who might come to the Proposed Project from distant parts of the San Diego region. Consequently, with the park/open space portion of the Project's potential to increase Vehicle Miles Traveled (VMT) within the region, it is presumed to have a significant VMT impact.

Based upon the criteria described above, the Proposed Project would need to conduct a detailed VMT analysis.

Topgolf Screening

Similar to the discussion above, OPR's technical advisory suggests that regional retail/commercial projects can lead to the substitution of longer trips for shorter ones and may tend to have a significant impact. *Generally, retail development including stores larger than 50,000 square feet might be considered regional-serving, and lead agencies should undertake an analysis to determine whether the project might increase or decrease VMT.*

Even though the Proposed Project primarily would fall under the land use category of "entertainment" or "leisure" rather than traditional retail, it shares several characteristics with retail projects, such as providing a direct service to patrons, generating revenue through individual

transactions, and offering a customer-centric experience. Therefore, for the purposes of the analysis conducted in this report, the Proposed Project is considered a "retail" project.

Based upon the criteria described above, the Proposed Project would need to conduct a detailed VMT analysis.

Liberator Way Screening

OPR's Technical Advisory provides a list of transportation projects that would not likely lead to a substantial or measurable increase in vehicle travel, and therefore generally should require an induced travel analysis, which include:

- Rehabilitation, maintenance, replacement, safety, and repair projects designed to improve the condition of existing transportation assets (e.g., highways; roadways; bridges; culverts; Transportation Management System field elements such as cameras, message signs, detection, or signals; tunnels; transit systems; and assets that serve bicycle and pedestrian facilities) and that do not add additional motor vehicle capacity.

The Proposed realignment of Liberator Way will provide a less circuitous route to access the establishments and public facilities located along Liberator Way, which may result in the same or less VMT in the Project area. The Proposed realignment of Liberator Way can be considered a replacement Project as it involves reconstructing a section of the roadway and replacing it with a new alignment. Therefore, based upon the criteria described above, the Proposed realignment of Liberator Way is not anticipated to induce vehicular travel and is deemed to have a **less-than-significant impact.**

VMT Impact Significance Thresholds

As previously mentioned, the Proposed Project (both components) is anticipated to increase regional trips. Therefore, for the purposes of the analysis conducted in this report, the Proposed Project shall be evaluated utilizing the following metric:

- Net Increase in Total VMT – Regional-serving development can lead to substitution of longer trips for shorter ones, may tend to have a significant impact. Therefore, projects that have a net increase in total VMT may be considered to have a significant impact and shall conduct a detailed VMT analysis.

Project VMT Analysis

Park (Open Space)

The Proposed Project would have a significant VMT impact and mitigation measures are required to reduce the Total VMT for the Proposed Project. However, the CAPCOA Report does not provide TDM Measures that are applicable for a park/open space project, as it is difficult for a project like this to reduce its VMT, given that its intent is to be a regional serving facility that caters to as many visitors as possible that may come from different parts of the San Diego Region to access San Diego's waterfront. Additionally, the Proposed Project will not have any employees on-site to which TDM measures could be applied. Therefore, the Proposed Project's total VMT cannot be reduced to less than significant levels and its impact is considered significant and unavoidable.

Topgolf

The Proposed Project would have a significant VMT impact and mitigation measures are required to reduce the Total VMT for the Topgolf Project.

The following five (5) TDM measures are deemed feasible for the Topgolf Project.

- *T-2. Increase Job Density* – This measure accounts for the VMT reduction achieved by a project that is designed with a higher density of jobs compared to the average job density in the U.S. Increased densities affect the distance people travel and provide greater options for the mode of travel they choose. Increasing job density results in shorter and fewer trips by single-occupancy vehicles and thus a reduction in GHG emissions.
- *T-7. Implement Commute Trip Reduction Marketing* – The Project's TDM coordinator will work with SANDAG to implement a marketing program that promotes alternative modes of transportation. The marketing program will educate employees about their travel choices to the employment location beyond driving such as carpooling, taking transit, walking, and bicycling, thereby reducing VMT and GHG emissions. The marketing materials will include information about amenities offered by the project such as SANDAG's Sustainable Transportation Services Program, as well as event specific information such as Bike Anywhere Day.
- T-10. Provide End-*of-Trip Bicycle Facilities* – This measure will install and maintain end-of-trip facilities for employee use. End-of-trip facilities include bike parking, bike lockers, and personal lockers. The provision and maintenance of secure bike parking and related facilities encourages commuting by bicycle, thereby reducing VMT and GHG emissions.
- *T-18. Provide Pedestrian Network Improvement* - The Project will be designed to provide direct and safe walking connectivity between the Project and North Harbor Drive. The aim is to create an accessible and safe pedestrian environment that encourages employees and other tenants to walk to and from the Project.
- *T-19-A. Construct or Improve Bike Facility* – This measure will construct or improve a single bicycle lane facility (only Class I, II, or IV) that connects to a larger existing bikeway network. Providing bicycle infrastructure helps to improve biking conditions within an area. This encourages a mode shift on the roadway parallel to the bicycle facility from vehicles to bicycles, displacing VMT and thus reducing GHG emissions. When constructing or improving a bicycle facility, the best practice is to consider local or state bike lane width standards.

The TDM Measures mentioned above are only applicable to reduce employee VMT, with the exception of TDM Measures 18 and 19A, which reduce VMT at the roadway parallel to the facility but can only be quantified at a Plan/Community level and not at a project-site level. However, it is

important to note that although VMT reductions associated with TDM Measures 18 and 19A cannot be quantified at a project-site level, per CAPCOA's Report, non-quantified GHG reduction measures may achieve emissions reductions and co-benefits on their own or may enhance the ability of quantified measures to attain expanded reductions and co-benefits. These measures may, therefore, strengthen implementation of a project mitigation strategy by promoting active transportation.

Although the Topgolf Project will provide TDM measures (T-2, T-7, and T-10), implementation of the TDM Program is only anticipated to reduce VMT associated with employees of the Topgolf Project and not VMT associated with patrons. Therefore, the TDM measures are not anticipated to reduce the total VMT of the Topgolf Project due to the unique characteristic of the project's land use as a regional entertainment center. Therefore, since the TDM measures would not reduce the Topgolf Project's total VMT to less than significant levels, the impact would not be mitigated, and the Proposed Project is considered to result in a significant and unavoidable impact.

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1.0 Proposed Project

Project Description

The East Harbor Island Redevelopment/Topgolf Project and Port Master Plan Amendment plans to redevelop portions of East Harbor Island. The Project site is approximately 38 acres of land generally bounded to the north by North Harbor Drive and the San Diego International Airport, to the west by Harbor Island Drive, to the south by Liberator Way and the East Basin portion of San Diego Bay, and to the east by the Convair Lagoon portion of San Diego Bay. Approximately 19.9 acres of the Project site is planned for redevelopment (East Harbor Island redevelopment area). The Project site is currently occupied by the San Diego Harbor Police headquarters; Avis, Enterprise, and Hertz rental car companies; and San Diego International Airport temporary construction staging facilities. Existing structures on site include several one- and two-story buildings, various small structures, surface parking lots, fencing, and limited vegetation. Much of the Project site shoreline is covered with a combination of riprap and concrete and asphalt sloped pavement.

Project components include demolition and removal of existing structures and improvements, realignment of Liberator Way, redevelopment of approximately 10 acres for the Topgolf entertainment complex (108 hitting bays), a parking lot with approximately 289 parking stalls, and development of a new park and promenade (approximately 10.1 acres). The existing San Diego Harbor Police headquarters located on the western side of East Harbor Island would remain in place.

This VMT Analysis will focus primarily on the Topgolf and Park (open space) portion of the development, as well as on the realignment of Liberator Way. **Figure 1.1** displays the Proposed Project's regional location. **Figure 1.2** displays the Proposed Project site plan.

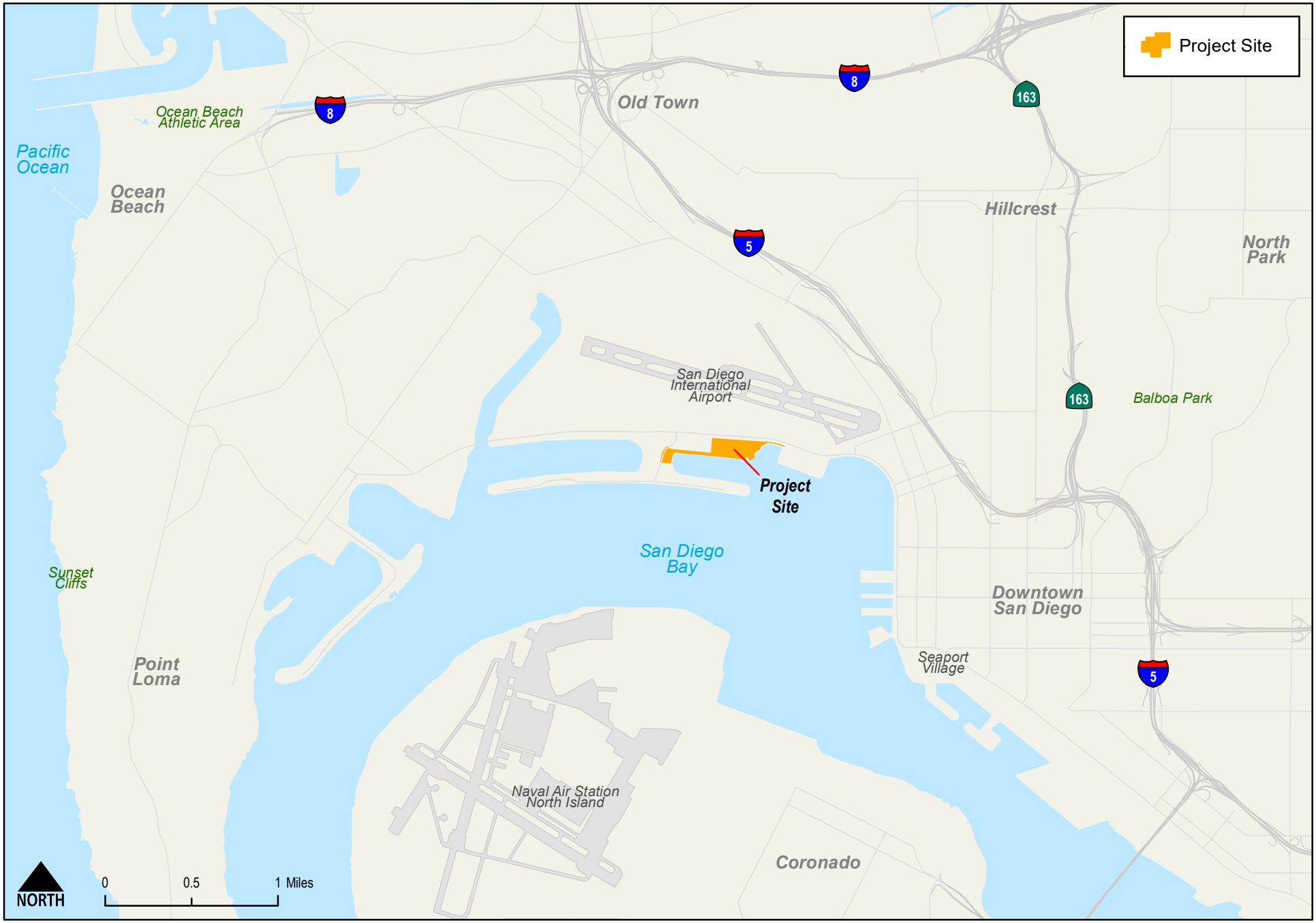

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Figure 1.1
Project Regional Location

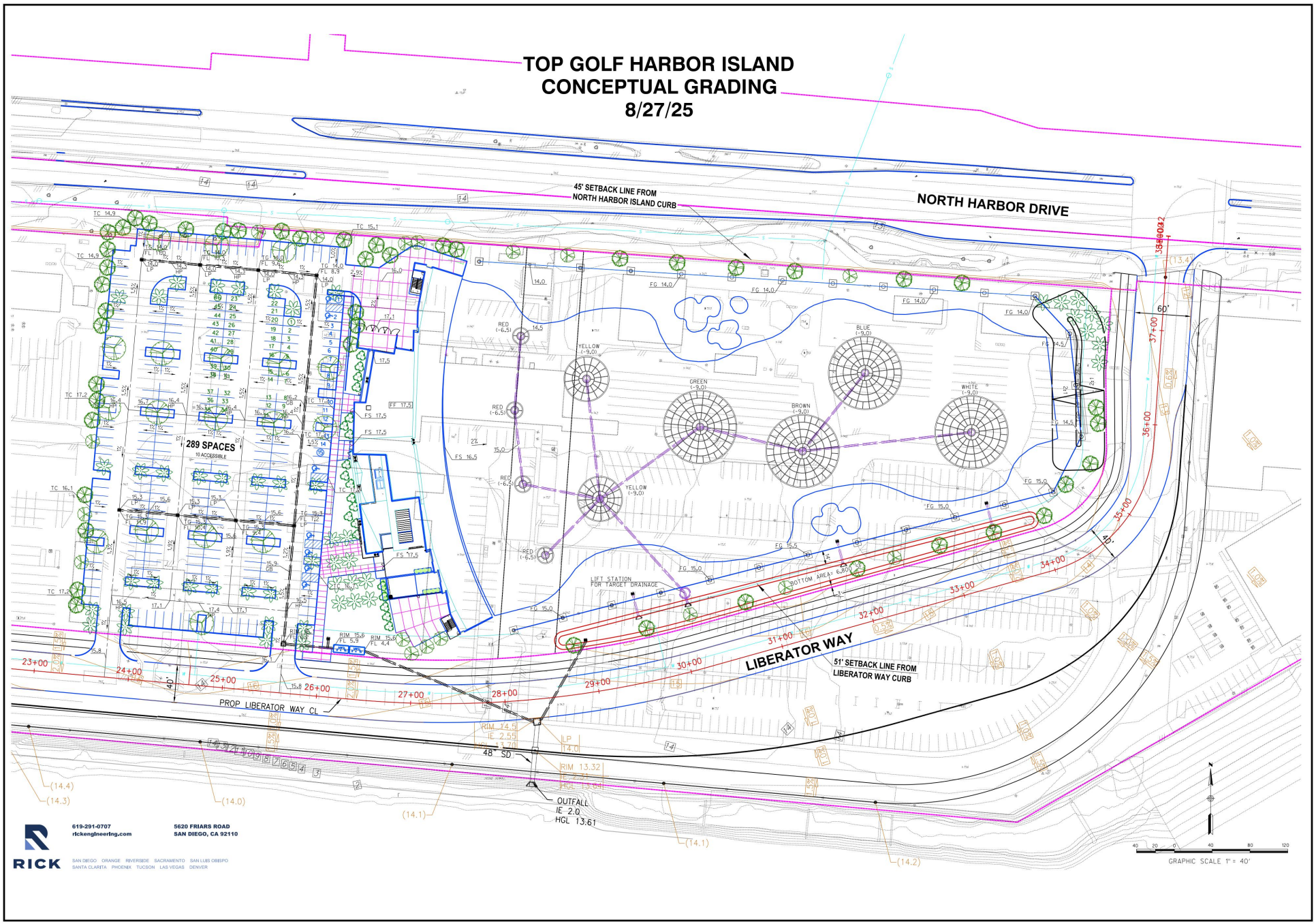

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Figure 1.2
Proposed Project Site Plan

1.1 Project Trip Generation

Due to the unique type of land use and operations of the Topgolf facility, trip generation rates contained within the City of San Diego's Land Development Code – Trip Generation Manual and the Institute of Transportation Engineers (ITE) Trip General Manual would not be applicable. Therefore, additional research was conducted to determine the most appropriate trip generation rate. The following five (5) documents were reviewed:

- *Burlingame Topgolf Transportation Impact Analysis Report* – prepared by Fehr & Peers November 2019
- *Traffic Impact Study for the Topgolf Ontario Project* – prepared by Sheppard Mullin Richter & Hampton, LLP March 2019
- *Topgolf Final Transportation Impact Analysis Report* (San Jose, CA) – prepared by Fehr & Peers September 2016
- *400 South Sepulveda Boulevard Proposed Topgolf Project Traffic Impact Analysis City of El Segundo, California* – prepared by RK Engineering Group, Inc. October 2016
- *North Central Roseville Specific Plan – Parcel 49* – prepared by Fehr & Peers November 2014

Upon review, four of the five studies derived the Topgolf trip generation based on the same August 2014 traffic counts conducted on an existing Topgolf facility located in Scottsdale, Arizona. The Scottsdale Topgolf site is self-contained, meaning that it is the only land use on site, therefore, the traffic counts accurately converted to trip generation rates, which was based on the number of golf hitting bays. The existing Topgolf sites listed above are configured with a total number of hitting bays ranging between 102 and 120 hit bays with the Scottsdale Topgolf site configured with 102 hitting bays. Therefore, since the Proposed Project is of the exact land use and proposes a total of 108 hitting bays (within the range of existing Topgolf sites), the same trip generation rates were used to determine the Proposed Project's trip generation.

As part of this analysis, trip generation for the 10.1 acres of park/open space adjacent to the Topgolf facility was also taken into consideration. The SANDAG *(not so) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* trip generation rate for a "City (developed w/meeting rooms and sports facilities) was utilized to determine the trip generation of the park/open space component.

For more details on trip generation, see the *East Harbor Island Redevelopment/Topgolf Project – Local Mobility Analysis, May 2024.*

Table 1.1 displays the expected weekday project trip generation, as well as the AM and PM peak hour project trip generation.

The project is anticipated to generate approximately 2,449 average daily trips (ADT), with 100 AM (63-in/37-out) peak hour trips, and 241 PM (121-in/120-out) PM peak hour trips.

Table 1.1 - Project Trip Generation

Land Use	Units	Trip Rate	ADT	AM Peak Hour					PM Peak Hour				
				%	Trips	Split	In	Out	%	Trips	Split	In	Out
Proposed Land Uses													
Topgolf Facility	108 Hitting Bays	18/Bay	1,944	1.7%	34	87:13	30	4	10%	195	50:50	98	97
Park Open Space[2]	10.1 Acres	50 per Acre[1]	505	13%	66	50:50	33	33	9%	46	50:50	23	23
		Total	**2,449**		**100**		**63**	**37**		**241**		**121**	**120**

Source: SANDAG Not So Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region (2002), CR Associates (2024)

Notes:
ADT = Average Daily Trips
[1]Trip generation rate consistent with trip generation utilized for *National City Total Bayfront with Pepper Park Wellness Center Alternative – Level of Service Analysis* – prepared by CR Associates (2022)

2.0 VMT Analysis Methodology & Mitigation Measures

The OPR Technical Advisory recommends that mixed-use projects, like the one proposed, should assess each land use component separately. This is because lumping together various land uses and applying a single threshold could lead to an inaccurate evaluation of impacts. Consequently, VMT screening for this project was carried out individually for both the Park (Open Space) portion and the Topgolf portion.

2.1 VMT Screening Criteria

The OPR's technical advisory suggests that lead agencies may screen out VMT using project size, land use type, maps, transit availability, and provision of affordable housing. Many agencies use these screening thresholds to quickly identify when a project should be expected to cause a less-than-significant impact without conducting a detailed study, and these criteria are identified below:

- Small Project – Projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact.
- Map-Based Screening for Residential and Office Projects – Residential and office projects located in areas with low VMT, and that incorporate similar features (i.e., density, mix of uses, transit accessibility), will tend to exhibit similarly low VMT. Maps created with VMT data, for example from a travel survey or a travel demand model, can illustrate areas that are currently below the threshold VMT. Because new development in such locations would likely result in a similar level of VMT, such maps can be used to screen out residential and office projects from needing to prepare a detailed VMT analysis.
- Presumption of Less Than Significant Impact Near Transit Stations – Certain projects (including residential, retail, and office projects, as well as projects that are a mix of these uses) proposed within ½ mile of an existing major transit stop or an existing stop along a high-quality transit corridor will have a less-than-significant impact on VMT.
- Presumption of Less Than Significant Impact for Affordable Residential Development – Adding affordable housing to infill locations generally improves jobs-housing match in turn shortening commutes and reducing VMT. Further, low-wage workers in particular would be more likely to choose a residential location close to their workplace if one is available. nevertheless existing jobs-housing match is closer to optimal, low-income housing nevertheless generates less VMT than market-rate housing. Therefore, a project consisting of a high percentage of affordable housing may be a basis for the lead agency to find a less-than-significant impact on VMT.
- Locally Serving Retail: Since new retail developments often shift existing shopping trips rather than generate additional ones, calculating the net change in Vehicle Miles Traveled (VMT)—that is, how total VMT changes with and without the project—is the most effective method for assessing a retail project's impact on transportation. Incorporating retail into the urban environment and thus bringing retail destinations closer can lead to shorter trips and a reduction in VMT, allowing lead agencies to typically regard such development as having a less-than-significant impact on transportation.
- Locally Serving Public Facility: Like locally serving retail, locally serving public facilities typically redistributed existing trips instead of creating new trips by providing more

recreational options for existing users. Thus, locally serving public facilities can lead to shorter trips and a reduction in VMT, allowing lead agencies to typically regard such development as having a less-than-significant impact on transportation.

- Transportation Projects: A transportation project which leads to additional vehicle travel on the roadway network, commonly referred to as "induced vehicle travel", would need to quantify the amount of additional vehicle travel in order to assess air quality impacts, greenhouse gas emissions impacts, energy impacts, and noise impacts. OPR's Technical Advisory provides a list of transportation projects that would not likely lead to a substantial or measurable increase in vehicle travel, and therefore generally should require an induced travel analysis. However, listed below is the type of project category most relevant for the purposes of the analysis documented in this report:
    - Rehabilitation, maintenance, replacement, safety, and repair projects designed to improve the condition of existing transportation assets (e.g., highways; roadways; bridges; culverts; Transportation Management System field elements such as cameras, message signs, detection, or signals; tunnels; transit systems; and assets that serve bicycle and pedestrian facilities) and that do not add additional motor vehicle capacity.

Projects that are not screened out should conduct a detailed VMT analysis.

2.2 VMT Impact Significance Thresholds

As previously mentioned, the Proposed Project (both components) are anticipated to increase regional trips. Therefore, for the purposes of the analysis conducted in this report, the Proposed Project shall be evaluated utilizing the following metric:

- Net Increase in Total VMT – Regional-serving development can lead to substitution of longer trips for shorter ones, may tend to have a significant impact. Therefore, projects that have a net increase in total VMT may be considered to have a significant impact and shall conduct a detailed VMT analysis.

2.3 Mitigation Measures

If a project is determined to have a significant transportation VMT impact, the impact must be mitigated by reducing the project's VMT by achieving one of the following:

- Reducing the number of automobile trips generated by the project or by the employees of the project
- Reducing the distance that people drive; or
- In the case of Transportation Projects, mitigation measures may include: implementing or funding off-site travel demand management, as well as, implementing Intelligent Transportation Systems (ITS) strategies to improve passenger throughout on existing lanes.

Strategies that reduce single occupant automobile trips or reduce travel distances are called Transportation Demand Management (TDM) strategies. There are several resources for determining the reduction in VMT due to TDM measures such as the CAPCOA Quantification Report and the SANDAG Mobility Management Guidebook/VMT Reduction Calculator Tool.

Projects that have a significant impact that cannot be mitigated to a less than significant level must provide a detailed statement of overriding considerations and findings to support these considerations in accordance with CEQA Guidelines Section 15091 and 15093.

3.0 Project VMT Analysis

This chapter derives and analyzes the projected VMT that will be generated by the Proposed Project. This chapter also identifies if the Proposed Project's VMT would create a significant project related impact. Finally, the chapter provides recommendations for mitigation measures that may reduce the Proposed Project's impacts to less than significant levels and evaluates the feasibility of the proposed mitigation measures.

3.1 Proposed Project VMT Screening

Park (Open Space) Screening

The park/open space portion of the Project is expected to generate new trips, as it would be a unique park space within the San Diego Bay that aims to enhance coastal access, become a top waterfront destination, and create a "Welcome to the Bay" experience. This could potentially increase the travel distance for users who might come to the Proposed Project from distant parts of the San Diego region. Consequently, the park/open space portion of the Project's has the potential to increase Vehicle Miles Traveled (VMT) within the region.

Based upon the criteria described above, the Proposed Project would need to conduct a detailed VMT analysis.

Topgolf Screening

Similar to the discussion above, regional retail/commercial projects can lead to the substitution of longer trips for shorter ones and may tend to have a significant impact. *Generally, retail development including stores larger than 50,000 square feet might be considered regional-serving, and lead agencies should undertake an analysis to determine whether the project might increase or decrease VMT.*

Even though the Proposed Project primarily would fall under the land use category of "entertainment" or "leisure" rather than traditional retail, it shares several characteristics with retail projects, such as providing a direct service to patrons, generating revenue through individual transactions, and offering a customer-centric experience. Therefore, for the purposes of the analysis conducted in this report, the Proposed Project is considered a "retail" project.

Based upon the criteria described above, the Proposed Project would need to conduct a detailed VMT analysis.

Liberator Way Screening

OPR's Technical Advisory provides a list of transportation projects that would not likely lead to a substantial or measurable increase in vehicle travel, and therefore generally should require an induced travel analysis, which include:

- Rehabilitation, maintenance, replacement, safety, and repair projects designed to improve the condition of existing transportation assets (e.g., highways; roadways; bridges; culverts; Transportation Management System field elements such as cameras, message signs, detection, or signals; tunnels; transit systems; and assets that serve bicycle and pedestrian facilities) and that do not add additional motor vehicle capacity.

The proposed realignment of Liberator Way, as shown in **Figure 3.1**, will offer a less circuitous route to the establishments and public facilities along the roadway. The realignment of Liberator Way involves shifting the roadway approximately 600 feet north of its current alignment and creating a new signalized intersection with Harbor Island Drive. This realignment aims to provide easier access and may result in the same or reduced vehicle miles traveled (VMT) in the project area. The Proposed realignment of Liberator Way can be considered a replacement project as it involves reconstructing a section of the roadway and replacing it with a new alignment. Therefore, based upon the criteria described above, the Proposed realignment of Liberator Way is not anticipated to induce vehicular travel and is deemed to have a **less-than-significant impact.**

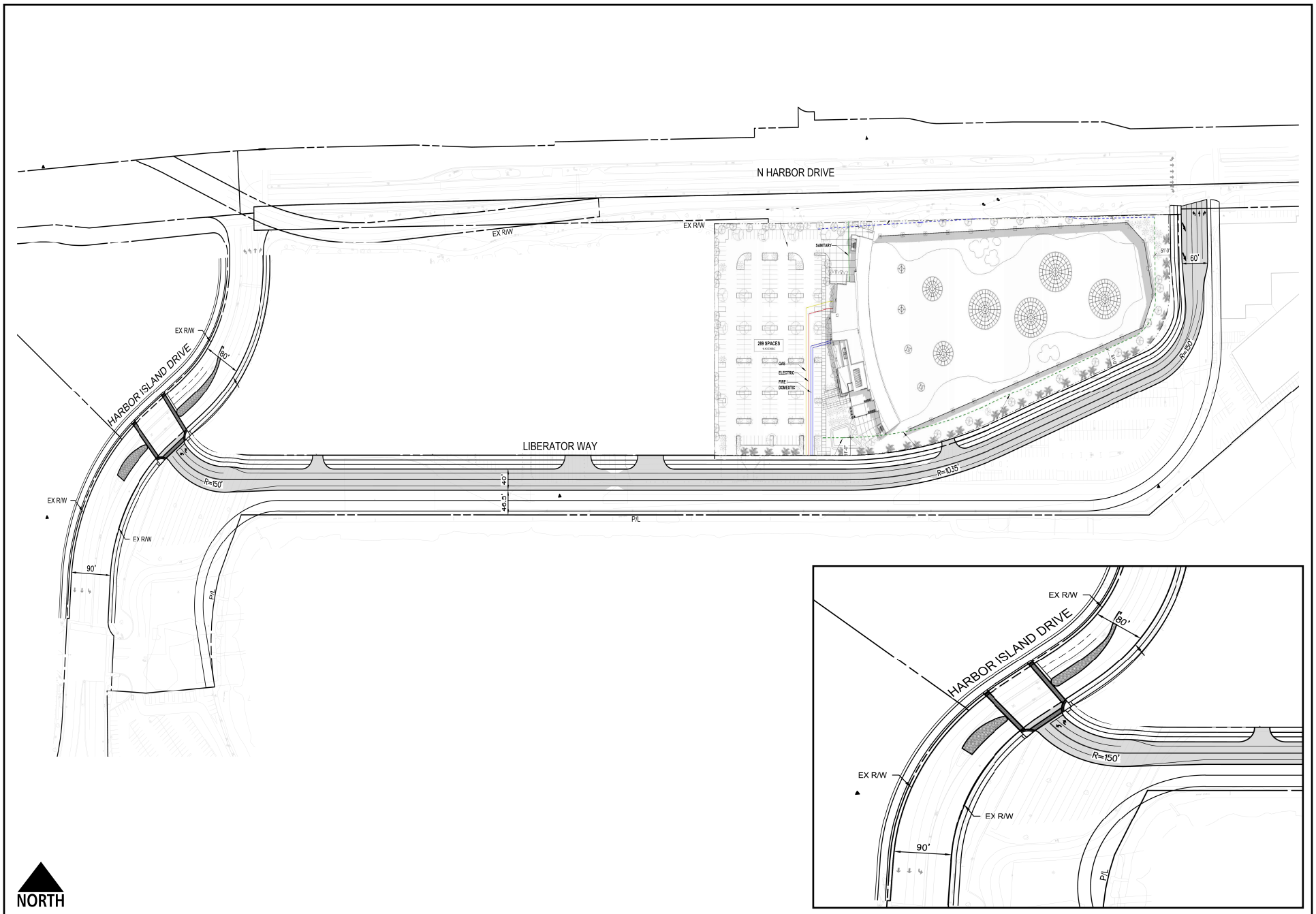

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Figure 3.1
Realignment of Liberator Way

3.2 Proposed Project VMT Analysis (Park/Open Space)

The Proposed Project aims to enhance coastal access and become a top waterfront destination and create a "Welcome to the Bay" experience, which caters to the San Diego region. The park/open space portion of the Project is expected to generate new trips, as it would be a unique park space within the San Diego Bay. This could potentially increase the travel distance for users who might come to the Proposed Project from distant parts of the San Diego region. Consequently, with the park/open space portion of the Project's potential to increase Vehicle Miles Traveled (VMT) within the region, it is presumed to have a significant VMT impact.

An analysis comparing the average trip lengths at other similar parks within the vicinity of the project was conducted to gauge its impact.

3.2.1 Average Trip Length

A review of two similar park/open space facilities near the Proposed Project was conducted to determine the average trip length. Average trip length was collected based on census tracts that contain each of the similar park/open space facilities via Replica big data[1] hosting services during Fall 2023 for a typical Saturday. Trips associated with recreation purposes were isolated from the rest of the trips that had a different trip purpose such as: eat, shop, social, etc. See **Appendix A** for Replica information details.

Park/Open Space facilities selected for review include:

- Waterfront Park – 1600 Pacific Highway, San Diego, CA, 92101
- Naval Training Center Park – 2455 Cushing Road, San Diego, CA, 92106

Table 3.1 displays the average trip lengths for existing nearby park/open space facilities.

Table 3.1 - Average Trip Length – Similar Park/Open Space Facilities

Location	Average Trip Length (miles)
Waterfront Park	9.5
Naval Training Center Park	11.1
Average	**10.3**

Source: Replica (Fall 2023)

Based on the collected data via Replica, the average trip length for the two selected sites is **10.3 miles.**

3.2.2 Estimated Project VMT

The VMT generated by the Proposed Project can be estimated by multiplying the average daily trips (shown on Table 1.1) generated by the Park/Open Space by the average trip length determined for existing nearby park/open space facilities in Section 3.2.1. **Table 3.2** displays the estimate VMT generated by the Proposed Project.

[1] Big Data – Describes the collection of complex and large data sets that is difficult to capture, process, store, search, and analyze using conventional data base systems.

Table 3.2 - Estimate VMT for Proposed Project (Park/Open Space)

Trip Generation	ADT	Trip Length	VMT	Significant Impact?
Unadjusted	505	10.3	5,202	**Yes**

Source: CR Associates (2024)

Notes:
ADT = Average Daily Trips
VMT = Vehicle Miles Traveled

Since the Proposed Project's VMT, based on unadjusted trip generation rates, would result in a net increase in VMT of 5,202. Therefore, the threshold for a regional park land use project is exceeded and may be presumed to have a **significant VMT impact**. Therefore, mitigation would be required.

3.3 Proposed Project VMT Analysis (Topgolf)

The Topgolf facility is similar to an active sport entertainment venue, similar to bowling alleys or miniature golf courses that cater to local clientele. However, as the first of its kind in San Diego County, Topgolf might initially draw visitors from a wider region, given its status as a well-known brand. Given the facility's unique nature, using the SANDAG Regional Transportation Model for predictions is impractical due to the absence of comparable land use data and understanding of trip behaviors. Therefore, an analysis comparing the average trip lengths at other Topgolf locations with those of existing local land uses was conducted to gauge its impact.

3.3.1 Average Trip Length

A review of five (5) existing Topgolf facilities for locations near the project (southern California and Arizona) was conducted to determine the average trip length. Average trip length was collected based on census block groups that contain each of the Topgolf locations via Replica big data hosting services during Spring 2023 for a typical Thursday. See Appendix A for Replica information details.

Topgolf facilities selected for review include:

- Topgolf Ontario located at 1050 N. Archibald Avenue Ontario, CA
- Topgolf El Segundo located at 400 S Pacific Coast Highway El Segundo, CA
- Topgolf Glendale located at 6101 N. 99th Ave. Glendale, AZ
- Topgolf Scottsdale located at 9500 E. Talking Stick Way Scottsdale, AZ
- Topgolf Gilbert located at 1689 S. Santan Village Pkwy Gilbert, AZ

Table 3.3 displays the average trip lengths for existing Topgolf locations.

Table 3.3 - Average Trip Length – Existing Topgolf Locations

Location	Average Trip Length (miles)
Topgolf Ontario	12.20
Topgolf El Segundo	15.30
Topgolf Glendale	11.80
Topgolf Scottsdale	13.50
Topgolf Gilbert	11.80
Average	**12.92**

Source: Replica (Spring 2023)

Based on the collected data via Replica, the average trip length for all five (5) sites is **12.92 miles.**

3.3.2 Estimated Project VMT

The VMT generated by the Topgolf Project can be estimated by multiplying the average daily trips (shown on Table 1.1) generated by the Topgolf Project by the average trip length determined for existing Topgolf locations in Section 3.3.1. **Table 3.4** displays the estimate VMT generated by the Proposed Project.

Table 3.4 - Estimate VMT for Proposed Project (Topgolf)

Trip Generation	ADT	Trip Length	Increase in VMT	Significant Impact?
Driveway Trips[1]	1,944	12.92	25,116	**Yes**

Source: CR Associates (2024)

Notes:
ADT = Average Daily Trips
VMT = Vehicle Miles Traveled
[1] Total number of vehicles entering/exiting the proposed project during a full day.

Since the Proposed Project's VMT, based unadjusted trip generation rates, would result in a net increase in VMT, the threshold for Regional Retail land use projects is exceeded and may be presumed to have a **significant VMT impact**. Therefore, mitigation would be required.

3.4 VMT Mitigation

Consistent with the Port Master Plan Update (PMPU) – Final Program Environmental Impact Report (FPEIR), three mitigation measures were identified:

1. Mitigation Measure (MM) – Transportation (TRA) – 1: Establish a Vehicle Miles Traveled (VMT) Infrastructure Mitigation Program.
2. MM-TRA-2: Project Level Analysis and Mitigation.
3. MM-TRA-3: Implement a Transportation Demand Management Plan.

MM-TRA-1: The VMT Infrastructure Mitigation Program aims at reducing VMT by implementing VMT reducing infrastructure. The program may include, but is not limited to, the following improvements:

- Mobility Hubs
- Transit Facilities
- Bicycle Improvements
- Pedestrian Improvements
- Bayfront Circulator
- Hotel Shuttle Service

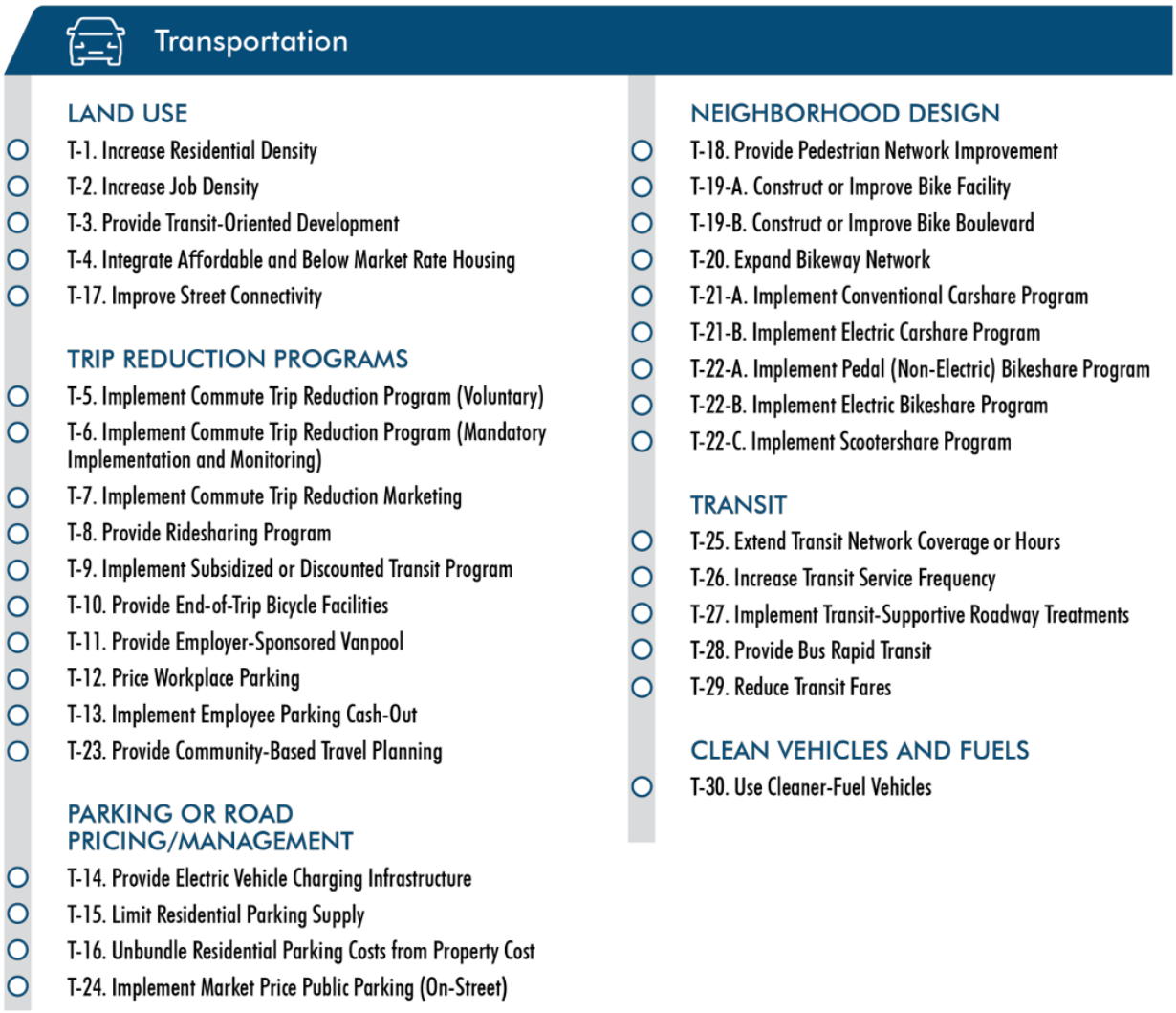
Funding for the improvements may come from one or more of the following methods: Transportation Impact Fees, District-Wide General In-Lieu Fee Program for Public Benefits, Private Investments, Public Investments, Private-Public Partnerships, Conditions of approval to Conditional Development Permits for future development, related to funding VMT-reducing measures, or other funding mechanisms. However, at the moment, the Port District has not yet established a VMT Infrastructure Mitigation Program for the Project. Therefore, there is no funding mechanism in place for the project to provide a fair share contribution.

MM-TRA-2 and MM-TRA-3: The Proposed Project conducted a Project Level Analysis (MM-TRA-2) and will implement a Transportation Demand Management (TDM) Plan (MM-TRA-3) to reduce the Project's VMT to the extent feasible. A TDM program would facilitate increased opportunities for walking and bicycling, as well as provide the resources, means and incentives for ride sharing and carpooling. The TDM program, which will include a TDM coordinator, will help reduce single occupancy vehicle dependency and encourage multi-modal travel as a way to get to and from the Proposed Project. By addressing both the supply and demand aspects of transportation, TDM programs aim to create a more balanced and sustainable transportation network.

TDM strategies for the Proposed Project and their effect on reducing VMT were obtained from the California Air Pollution Control Officers Association (CAPCOA) Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity – 2021 edition (CAPCOA Report). The SANDAG Mobility Management Guidebook/VMT Reduction Tool, which was developed based on the 2010 edition of the CAPCOA Report, was considered but not utilized since it was superseded by the 2021 edition.

The CAPCOA Report provides a list of 34 different TDM measures that would reduce VMT and/or Green House Gas emissions. **Figure 3.2** displays the list of TDM measures from the CAPCOA report. Of the 34 measures, 5 relate to land use design, 10 relate to trips reduction, 4 relate to parking management, 9 relate to neighborhood design, 5 relate to transit improvements, and 1 relates to clean vehicles.

Figure 3.2 - CAPCOA TDM Measures



Park (Open Space)

The Proposed Project would have a significant VMT impact and mitigation measures are required to reduce the Total VMT for the Proposed Project. However, the CAPCOA Report does not provide TDM Measures that are applicable for a park/open space project, as it is difficult for a project like this to reduce its VMT, given that its intent is to be a regional serving facility that caters to as many visitors as possible that may come from different parts of the San Diego Region to access San Diego's waterfront. Additionally, the Proposed Project will not have any employees on-site to which TDM measures could be applied. Therefore, the Proposed Project's total VMT cannot be reduced to less than significant levels and its impact is considered significant and unavoidable impact.

It is important to note that these findings are consistent with the findings documented in the FPEIR, which identifies VMT impacts associated with the future projects proposed in the Port's Planning Districts 2, 3, 8, 9, and 10, to remain significant and unavoidable, even after implementation of the following mitigation measures:

1. Mitigation Measure (MM) – Transportation (TRA) – 1: Establish a Vehicle Miles Traveled (VMT) Infrastructure Mitigation Program.
2. MM-TRA-2: Project Level Analysis and Mitigation.
3. MM-TRA-3: Implement a Transportation Demand Management Plan.

Topgolf

The Proposed Project would have a significant VMT impact and mitigation measures are required to reduce the Total VMT for the Proposed Project.

Of the 34 measures, 10 trip reduction measures can be implemented at the project specific level and were evaluated to determine if they are applicable for the Proposed Project. The following five (5) TDM measures are deemed feasible for the Proposed Project.

- *T-2. Increase Job Density* – This measure accounts for the VMT reduction achieved by a project that is designed with a higher density of jobs compared to the average job density in the U.S. Increased densities affect the distance people travel and provide greater options for the mode of travel they choose. Increasing job density results in shorter and fewer trips by single-occupancy vehicles and thus a reduction in GHG emissions.
- *T-7. Implement Commute Trip Reduction Marketing* – The Project's TDM coordinator will work with SANDAG to implement a marketing program that promotes alternative modes of transportation. The marketing program will educate employees about their travel choices to the employment location beyond driving such as carpooling, taking transit, walking, and bicycling, thereby reducing VMT and GHG emissions. The marketing materials will include information about amenities offered by the project such as SANDAG's Sustainable Transportation Services Program, as well as event specific information such as Bike Anywhere Day.
- *T-10. Provide End-of-Trip Bicycle Facilities* – This measure will install and maintain end-of-trip facilities for employee use. End-of-trip facilities include bike parking, bike lockers, and personal lockers. The provision and maintenance of secure bike parking and related facilities encourages commuting by bicycle, thereby reducing VMT and GHG emissions.
- *T-18. Provide Pedestrian Network Improvement* - The project will be designed to provide direct and safe walking connectivity between the project and North Harbor Drive. The aim is to create an accessible and safe pedestrian environment that encourages employees and other tenants to walk to and from the project.
- *T-19-A. Construct or Improve Bike Facility* – This measure will construct or improve a single bicycle lane facility (only Class I, II, or IV) that connects to a larger existing bikeway network. Providing bicycle infrastructure helps to improve biking conditions within an area. This encourages a mode shift on the roadway parallel to the bicycle facility from vehicles to bicycles, displacing VMT and thus reducing GHG emissions. When constructing or improving a bicycle facility, the best practice is to consider local or state bike lane width standards.

Table 3.5 displays the selected measures and the associated VMT reduction.

Table 3.5 - Proposed Project VMT Mitigation (Topgolf)

TDM Measure	VMT Reduction
T-2. Increase Job Density	-5.55%
T-7. Implement Commute Trip Reduction Marketing	-4.00%[1]
T-10. Provide End-of-Trip Bicycle Facilities	-0.12%
T-18. Provide Pedestrian Network Improvement	-4.78%
T-19A. Construct or Improve Bike Facility	-0.01%

Source: CR Associates (2024)

Notes:
[1] Assumes that all employees (100%) are eligible to participate in the program.
[2] Assumes 100% subsidy of transit pass.
[3] The pedestrian network improvements are only at the project frontage and the VMT reduction is marginal.

The CAPCOA Report notes that the interactions between TDM measures are complex and sometimes counterintuitive, whereby combining measures can have a substantive impact on reported emission reductions. Therefore, it is recommended that the following rules are followed:

- Combining Measures Across Scales – The GHG reductions of transportation measures from different scales (Project/Site to Plan/Community) of application should never be combined.
- Combining Measures within a Subsector – Effectiveness for multiple measures within a subsector may be multiplied to determine a combined effectiveness level by using the following formula:
    - $Reduction_{subsector}$ = 1 – [(1 - First Strategy) * (1 - Second Strategy) * (1 – Third Strategy)…]

The TDM Measures mentioned above are only applicable to reduce employee VMT, with the exception of TDM Measures 18 and 19A, which reduce VMT at the roadway parallel to the facility but can only be quantified at a Plan/Community level and not at a project-site level. Therefore, the Proposed Project would have the following overall VMT reduction:

Overall VMT Reduction = 1 – [(1 - 0.055) * (1 – 0.04) * (1 – 0.0012)]

Overall Employee VMT Reduction = 9.43% (See **Appendix B** for calculation details)

Although the Proposed Project will provide TDM measures, implementation of the TDM Program is only anticipated to reduce VMT associated with the 400 employees anticipated at the Proposed Project (Topgolf) and not VMT associated with patrons. However, it is important to note that although VMT reductions associated with TDM Measures 18 and 19A cannot be quantified at a project-site level, per CAPCOA's Report, non-quantified GHG reduction measures may achieve emissions reductions and co-benefits on their own or may enhance the ability of quantified measures to attain expanded reductions and co-benefits. These measures may, therefore, strengthen implementation of a project mitigation strategy by promoting active transportation.

Table 3.6 displays the estimate VMT generated by the employees of the Proposed Project, as well as the anticipated VMT reduction after implementation of the TDM measures.

Table 3.6 - Estimated VMT Reduction for Proposed Project (Topgolf)

Number of Employees	Average Trip Length	VMT Generated by Employees	% VMT Reduction from TDM Measures	VMT Reduction	Total VMT Generated by Employees with TDM Measures
400	12.92	5,168	9.43%	487	4,681

Source: CR Associates (2024)

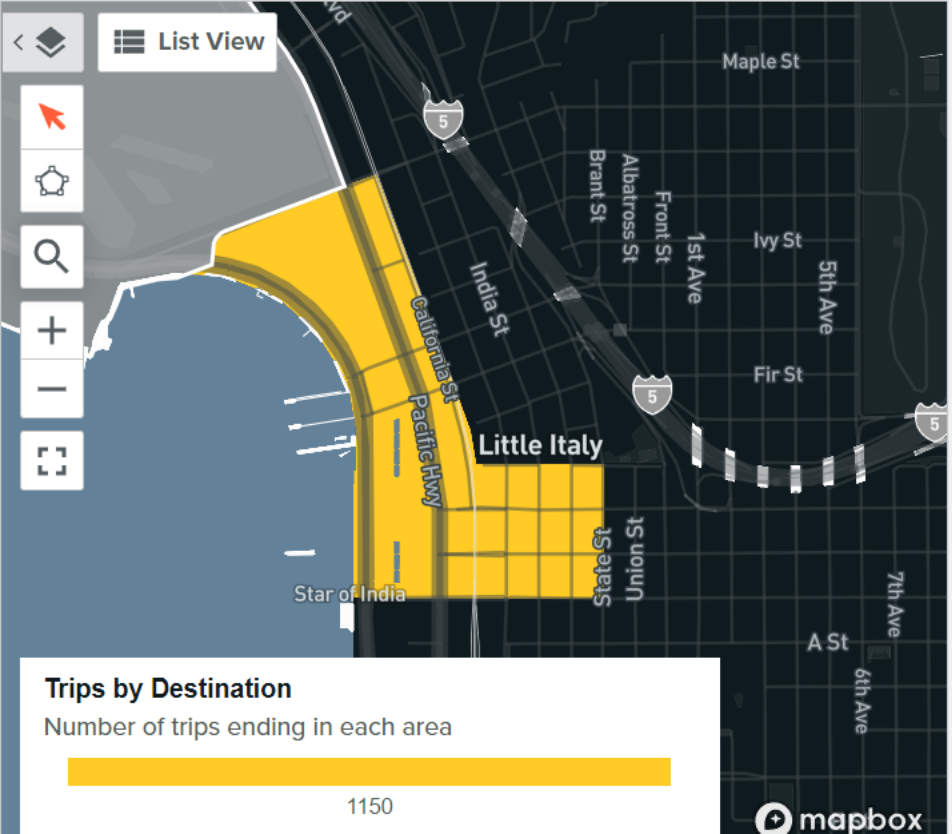
As shown above, the VMT generated by the 400 employees of the Proposed Project is 5,168 (out of the total 25,116 VMT identified in Table 3.4). After implementation of TDM measures, which provide a 9.43% VMT reduction of the VMT generated by employees, the total VMT generated by employees is reduced by 485, for a total of 4,681.

Therefore, the TDM measures are not anticipated to reduce the total VMT of the Proposed Project due to the unique characteristic of the project's land use as a regional entertainment center. Since the TDM measures would not reduce the Proposed Project's total VMT to less than significant levels, the impact would not be mitigated, and the Proposed Project is considered to result in a significant and unavoidable impact.

It is important to note that these findings are consistent with the findings documented in the FPEIR, which identifies VMT impacts associated with the future projects proposed in the Port's Planning Districts 2, 3, 8, 9, and 10, to remain significant and unavoidable, even after implementation of the following mitigation measures:

1. Mitigation Measure (MM) – Transportation (TRA) – 1: Establish a Vehicle Miles Traveled (VMT) Infrastructure Mitigation Program.
2. MM-TRA-2: Project Level Analysis and Mitigation.
3. MM-TRA-3: Implement a Transportation Demand Management Plan.

Appendix A - Replica Information



Trips by Destination

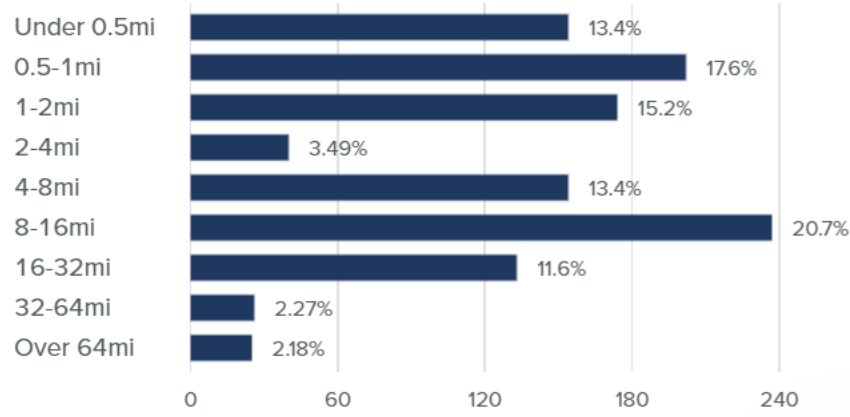
Number of trips ending in each area

1150

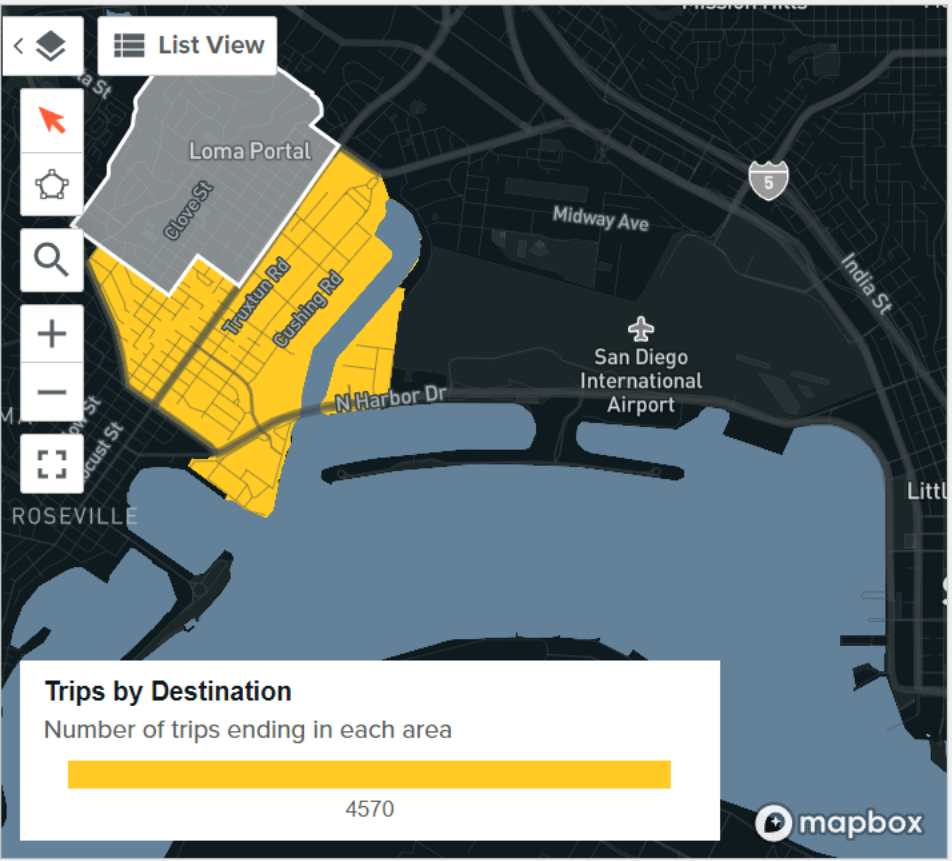
Summaries

Manage Charts

Trips | People



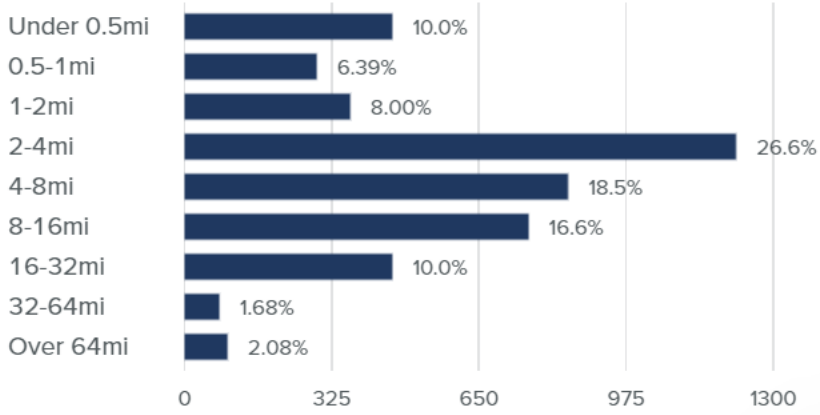
Average Miles **9.5** | Median Miles **4**



Summaries

Manage Charts

Trips | People



Average Miles **11.1** | Median Miles **3.7**

Appendix B - VMT Reduction Calculations

T-2 Increase Job Density

Measure Description
This measure accounts for the VMT reduction achieved by a project
that is designed with a higher density of jobs compared to the average job density in the U.S. Increased densities affect the distance people travel and provide greater options for the mode of
travel they choose. Increasing job density results in shorter and

Subsector
Land Use

Locational Context
Urban, suburban

Scale of Application
Project/Site

Implementation Requirements
This measure is most accurately quantified when applied to larger developments and/or developments where the density is somewhat similar to the surrounding neighborhood.

GHG Reduction Formula

$$A = \frac{B - C}{C} \times D$$

User Inputs			
B	Job Density of Project Development	260	jobs/acre
Constants, Assumptions, and Available Defaults			
C	Job Density of Typical Development	145	jobs/acre
D	Elasticity of VMT with Respect to Job Density	-0.07	unitless
Result			
A_{max}	Measure Maximum	-30	%
A	Percent VMT Reduction	**-5.55**	%

T-7 Implement Commute Trip Reduction Marketing

Measure Description
This measure will implement a marketing strategy to promote the project site employer's CTR program. Information sharing and marketing promote and educate employees about their travel choices to the employment location beyond driving such as carpooling, taking transit, walking, and biking, thereby reducing VMT and GHG emissions.

Subsector
Trip Reduction Programs

Locational Context
Urban, Suburban

Scale of Application
Project/Site

Implementation Requirements
The following features (or similar alternatives) of the marketing strategy are essential for effectiveness.
- Onsite or online commuter information services.
- Employee transportation coordinators.
- Onsite or online transit pass sales.
- Guaranteed ride home service.

GHG Reduction Formula

$$A = B \times C \times D$$

User Inputs			
B	Percent of Employees Eligible for Program	100	%
Constants, Assumptions, and Available Defaults			
C	Percent Reduction in Employee Commute Vehicle Trips	-4	%
D	Adjustment from Vehicle Trips to VMT	1	%
Result			
A	Percent VMT Reduction	**-4.00**	%

T-10. Provide End-of-Trip Bicycle Facilities

Measure Description
This measure will install and maintain end-of-trip facilities for employee use. End-of-trip facilities include bike parking, bike lockers, showers, and personal lockers. The provision and maintenance of secure bike parking and related facilities encourages commuting by bicycle, thereby reducing VMT and GHG emissions.

Subsector
Trip Reduction Programs

Locational Context
Urban, Suburban

Scale of Application
Project/Site

Implementation Requirements
End-of-trip facilities should be installed at a size proportional to the number of commuting bicyclists and regularly maintained.

GHG Reduction Formula

$$A = \frac{C \times \left(E - (B \times E)\right)}{D \times F}$$

Constants, Assumptions, and Available Defaults			
B	Bike mode adjustment factor	1.78	unitless
C	Existing bicycle trip length for all trips in region	2.00	miles
D	Existing vehicle trip length for all trips in region	19.10	miles
E	Existing bicycle mode share for work trips in region	1.30	%
F	Existing vehicle mode share for work trips in region	91.80	%

Results			
A_{max}	Measure Maximum	-4.4	%
A	Percent VMT Reduction	**-0.12**	%

T-18 Provide Pedestrian Network Improvement

Measure Description
This measure will increase the sidewalk coverage to improve pedestrian access. Providing sidewalks and an enhanced pedestrian network encourages people to walk instead of drive. This mode shift results in a reduction in VMT and GHG emissions.

Subsector
Neighborhood Design

Locational Context
Urban, Suburban, Rural

Scale of Application
Plan/Community

Implementation Requirements
The GHG reduction of this measure is based on the VMT reduction associated with expansion of sidewalk coverage expansion, which includes not only building of new sidewalks but also improving degraded or substandard sidewalk (e.g., damaged from street tree roots). However, pedestrian network enhancements with non-quantifiable GHG reductions are encouraged to be implemented, as discussed under Expanded Mitigation Options.

GHG Reduction Formula

$$A = \left(\frac{C}{B} - 1\right) \times D$$

User Inputs			
B	Existing Sidewalk Length in Study Area	0.89	miles
C	Sidewalk Length in Study Area With Measure	1.74	miles
Constants, Assumptions, and Available Defaults			
D	Elasticity of Household VMT With Respect to the Ration of Sidewalks-To-Streets	-0.05	unitless
Result			
A_{max}	Measure Maximum	-6.4	%
A	Percent VMT Reduction	**-4.78**	%

Existing Sidewalk (ft)	
820	
824	
4180	
2006	
1334	
Total (ft)	**9164**
Total (miles)	**1.735606**

Proposed Sidewalk (ft)	
3451	
1095	
156	
Total (ft)	**4702**
Total (miles)	**0.89053**

T-19A Construct or Improve Bike Facility

Measure Description
This measure will construct or improve a single bicycle lane facility (only Class I, II, or IV) that connects to a larger existing bikeway network. Providing bicycle infrastructure helps to improve biking conditions within an area. This encourages a mode shift on the roadway parallel to the bicycle facility from vehicles to bicycles, displacing VMT and thus reducing GHG emissions. When constructing or improving a bicycle facility, a best practice is to consider local or state bike lane width standards. A variation of this measure is provided as T-19-B, Construct or Improve Bike

Subsector
Neighborhood Design

Locational Context
Urban, Suburban

Scale of Application
Plan/Community. This measure reduces VMT on the roadway segment parallel to the bicycle facility (i.e., the corridor). An adjustment factor is included in the formula to scale the VMT reduction from the corridor level to the plan/community level

Implementation Requirements
The bicycle lane facility must be either Class I, II, or IV. Class I bike paths are physically separated from motor vehicle traffic. Class IV bikeways are protected on-street bikeways, also called cycle tracks. Class II bike lanes are striped bicycle lanes that provide exclusive use to bicycles on a roadway.

GHG Reduction Formula

$$A = -B \times \left(\frac{\frac{F}{I} \times (C + D) \times E \times G}{H} \right)$$

User Inputs				
B		Percent of Plan/Community VMT on Parallel Roadway	5	%
C		Active Transportation Adjustment Factor	0.0104	unitless
	C1	Population > 250k or Non-University Town with Population < 250k?	No	
	C2	One-Way Facility Length	≤ 1	miles
	C3	Average Daily Traffic	1 to 12,000	ADT
D		Credits for Key Destinations Near Project	0.002	unitless
	D1	Number of Key Destinations	4 to 6	
	D2	Destinations Located Within	1/4 mile of Facility	
E		Growth Factor Adjustment for Facility Type	1.54	unitless
	E1	Facility Type	New Class I Bike Path or Class IV Bikeway	

Constants, Assumptions, and Available Defaults			
F	Annual Days of Use of New Facility	323	days/year
G	Existing Regional Average One-Way Bicycle Trip Length	2	miles/trip
H	Existing Regional Average One-Way Vehicle Trip Length	19.1	miles/trip
I	Days Per Year	365	days/year

Result			
A_{max}	Measure Maximum	-0.8	%
A	Percent VMT Reduction	**-0.01**	%