DATE: September 16, 2016

TO: Chair Stephen Haase and Members of the Planning Commission

FROM: Jeff Murphy, Director, Planning Department

SUBJECT: Supplemental Analysis of Community Plan Updates – North Park and Golden Hill

The purpose of this memorandum is to provide a summary of the supplemental analysis conducted by staff, in coordination with SANDAG and City as-needed consultants, Kimley-Horn and RECON Environmental, Inc., to further analyze the changes in vehicle miles traveled (VMT) per population capita, commuter travel trip length, and mobility mode share as a result of all components associated with the Community Plan Updates (CPUs) for North Park and Golden Hill. This information has undergone additional analysis to further inform the public and decision makers on issues raised during hearings and workshops, as well as within comment letters received during public review of the Draft PEIRs prepared for the CPUs.

The following summarizes City staffs further analysis of the Vehicle Miles Traveled (VMT) data previously presented in the Draft PEIRs for each of the CPUs, and the attached Supplemental White Paper (Estimating Community Plan Update Contributions Towards Climate Action Plan Goals) prepared by Kimley-Horn (Attachment A).

VMT PER CAPITA

The VMT data was prepared by RECON Environmental, Inc., as part of the Supplemental GHG Analysis prepared for the CPUs and presented in the Appendix to the Draft PEIR. The raw modeled data was derived from CalEEMod as part of the GHG analysis, and was presented in the technical study as an annual aggregated VMT for each of the community plan areas.

City Traffic Engineers have conducted post-processing to develop a daily, per capita VMT to better present the results of the VMT analysis, providing a comparative analysis of the population, VMT (annual aggregate per community), and the daily VMT per capita for the Existing condition and the proposed project (Proposed CPUs).

The findings from this further analysis revealed that the proposed CPUs will result in a decrease in VMT. This decrease in VMT provides a proxy or compatible metric for GHG emissions, to illustrate that the proposed CPUs will reduce emissions produced by people in daily activities.
One of the primary functions of the CPUs is to address how and where future growth will occur in the community. As reflected in Figure 1 and 2 below, the data shows that population and VMT (annual aggregate) both increase (trend upward). With the additional population growth in the CPUs the collective VMT increases, but that increase is community-wide.

Where the residents live and/or work within the community has a significant impact on regional travel patterns associated with the individual. To properly account for a person’s vehicular use, you must convert the VMT from a community-wide aggregate to a per capita numeric.

The data below shows that the daily VMT per capita decreases. This inverse of results of the daily VMT per capita occurs despite the increase in population growth and new planned densities in the proposed CPUs. The reason for the result is because CPUs focus the anticipated growth and new densities within Transit Priority Areas, or TPAs, where the existing and proposed transit options and bike and pedestrian amenities can be realized by the new residents and employment options.

Figure 1: North Park Roundtrip Commuter Trip Length Analysis Results within TPAs

Figure 2: Golden Hill Roundtrip Commuter Trip Length Analysis Results within TPAs
TRAVEL TRIP LENGTH

The CAP identified a Citywide target of 23 miles (round trip) by year 2035. The results of the data shows that the development within the CPUs, both commercial (labor) and residential, are well below the Citywide goals for commuters in the CAP, as reflected below.

Table 1: North Park Roundtrip Commuter Trip Length Analysis Results within TPAs

<table>
<thead>
<tr>
<th>Commute Mode</th>
<th>CPU 2035 Trip Length</th>
<th>2035 Citywide CAP Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roundtrip Commute Trip Length</td>
<td>19.1 miles</td>
<td>23 miles*</td>
</tr>
</tbody>
</table>

*Source: City of San Diego Climate Action Plan, Dec 2015

Table 2: Golden Hill Roundtrip Commuter Trip Length Analysis Results within TPAs

<table>
<thead>
<tr>
<th>Commute Mode</th>
<th>CPU 2035 Trip Length</th>
<th>2035 Citywide CAP Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roundtrip Commute Trip Length</td>
<td>19.7 miles</td>
<td>23 miles*</td>
</tr>
</tbody>
</table>

*Source: City of San Diego Climate Action Plan, Dec 2015

MODE SHARE

The combination of utilization of automobiles, transit, bicycle, and walking, total the mode share as presented in the CAP and analyzed in the Supplemental Analysis. The CAP documents a series of strategies and establishes goals for the City of San Diego to reduce its greenhouse gas (GHG) emissions citywide; however, it does not specifically state that each community must reach the goals.

Rather, the CAP reductions are Citywide reductions, and due to the nature of community planning, are not always appropriate to be distributed equally amongst each community. For example, each community has unique physical characteristics (e.g., topography, freeway barriers) that influence feasibility to achieve high bicycle ridership. While one community may be constrained with respect to bicycle mode share, it may provide additional opportunities for transit or pedestrian mode shares, for example.

The CAP recognizes that reductions can be achieved in multiple ways and that flexibility in implementation is necessary. The following analysis report focuses on Year 2035 Community Plan mode share within Transit Priority Areas (TPA) and how they align with significant progress toward Citywide CAP goals. The tables below show the result of the analysis.
Table 3: North Park Mode Share Analysis Results within TPAs

<table>
<thead>
<tr>
<th>Commute Mode</th>
<th>Existing</th>
<th>CPU 2035 Mode Share</th>
<th>2035 Citywide CAP Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto</td>
<td>89.7%</td>
<td>58.7%</td>
<td>50%</td>
</tr>
<tr>
<td>Transit</td>
<td>6.2%</td>
<td>19.3%</td>
<td>25%</td>
</tr>
<tr>
<td>Walk</td>
<td>2.4%</td>
<td>11.2%</td>
<td>7%</td>
</tr>
<tr>
<td>Bike</td>
<td>1.7%</td>
<td>10.8%</td>
<td>18%</td>
</tr>
</tbody>
</table>

Table 4: Golden Hill Mode Share Analysis Results within TPAs

<table>
<thead>
<tr>
<th>Commute Mode</th>
<th>Existing</th>
<th>CPU 2035 Mode Share</th>
<th>2035 Citywide CAP Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto</td>
<td>89.6%</td>
<td>63.7%</td>
<td>50%</td>
</tr>
<tr>
<td>Transit</td>
<td>5.9%</td>
<td>18.3%</td>
<td>25%</td>
</tr>
<tr>
<td>Walk</td>
<td>2.7%</td>
<td>10.1%</td>
<td>7%</td>
</tr>
<tr>
<td>Bike</td>
<td>1.8%</td>
<td>7.8%</td>
<td>18%</td>
</tr>
</tbody>
</table>

While the CPU 2035 Mode Share currently shows an automobile share that exceeds the 2035 Citywide CAP goal, this analysis does not account for other programs and policies that would be implemented throughout the life of the community plans, such as additional bicycle and pedestrian improvements whenever street resurfacing occurs, as feasible; highest priority bicycle and pedestrian improvements that align with “Vision Zero”; regional improvements that promote alternative modes of transportation, such as mobility hubs; promotion of bicycle and car sharing programs; the CAP consistency checklist for new development; and, improvements to enhance transit accessibility.

To help clarify this important point, additional policies are being added to the chapters addressing sustainability and conservation in the Community Plans to support CAP implementation, as reflected below. These added policies will also be presented to the Planning Commission at the public hearing on September 22, 2016.

**POLICY:** Continue to monitor the mode share within TPAs within the community in support of the CAP Annual Monitoring Report Program.

**POLICY:** Support implementation of the CAP through the following actions:
- Additional bicycle and pedestrian improvements whenever street surfacing occurs, as feasible
- Highest priority bicycle and pedestrian improvements that align with “Vision Zero”
Regional improvements that promote alternative modes of transportation, such as mobility hubs

Promotion of bicycle and car sharing programs

The CAP consistency checklist for new development as applicable

Improvements to enhance transit accessibility

These policies also support continued monitoring of the mode share within the TPAs, within the communities, in support of the CAP Annual Monitoring Report Program. The data provided in the tables above provides a platform upon which the City can continue its efforts to realize the mode share to achieve the Citywide GHG reductions set forth in the CAP.

Sincerely,

Jeff Murphy
Director, Planning Department

Attachments:


cc: File
Estimating Community Plan Update Contributions towards Climate Action Plan Goals

White Paper

Prepared for:
City of San Diego

Prepared by:
Kimley-Horn

401 B Street
Suite 600
San Diego, CA 92101

September 14, 2016
Introduction

The *City of San Diego Climate Action Plan* (CAP), adopted December 2015, documents a series of strategies for the City of San Diego to reduce its Green House Gas (GHG) emissions. Each strategy contains goals for Target Years 2020 and 2035.

This document and methodology described below will focus on Strategy 3 in the CAP (increasing bicycling, walking and transit) and how community plans, prepared by the City of San Diego Planning Department, will align with the stated goals for mode share and commute trip length. The CAP stated goals for mode share and commute trip length are as follows:

- **Target 3.1:** Mass Transit Mode Share – increase peak period commute mode share to 12% by 2020 and 25% by 2035 in 2035 Transit Priority Areas (TPAs);
- **Target 3.2:** Walking Mode Share – increase peak period commute mode share to 4% by 2020 and 7% by 2035 in the 2035 TPAs;
- **Target 3.3:** Bicycling Mode Share – increase peak period commute mode share to 6% by 2020 and 18% by 2035 in the 2035 TPAs;
- **Target 3.6:** Reduce average vehicle commute distance by 2 miles by 2035.

The CAP establishes goals Citywide, and does not specifically state that each community must reach the goals. This methodology, detailed in this document, will demonstrate how changes resulting from the Land Use and Mobility Element within community plans will be analyzed to determine if the community plan updates (CPU) are aligned with the Citywide CAP goals. This analysis report focuses on Year 2035 Community Plan mode share and how they align with the citywide CAP goals.

A – Literature and Software Review

To develop a methodology for the forecasting of future mode share, a review of reports, research publications, previously submitted studies and existing software was completed to evaluate the complexity and applicability of the inputs, processes and outputs from each method. A list of the literature and software sources are cited below.

- **Quantifying Greenhouse Gas Mitigation Measures** – California Air Pollution Control Officers Association (CAPCOA), 2010
- **SB743 Sketch Planning Tool** – San Diego Association of Governments
- **MXD Spreadsheet** – San Diego Association of Governments
- **CarbonFIT Software** – Parson Brinkerhoff
- **GreenScore Software** – PlaceWorks
- **GreenTrip Software** – TransForm
- **Moving Cooler** – Urban Land Institute, 2009

NCHRP Report 552 provides a method for determining changes in bicycle mode share for commute trips based on new facilities in a community. The methodology appears to be sensitive to various types of bicycle facilities ranging from Class I to Class III, and changes in density adjacent bicycle facilities. Data
needs include existing and planned bicycle facilities, percent of adult population that bicycle in a day and population of adults.

ITE Trip Generation Handbook, 3rd Edition outlines a method for estimating person trips for mixed-use developments, urban infill and transit friendly development projects. The method uses land uses found in regional models to estimate person trips. Additional case studies on urban infill and transit oriented development projects provide case studies to validate results.

SB 743 Sketch Planning Tool developed by SANDAG is based on an interactive map published by SANDAG which provides the VMT per Capita and the population of neighborhoods. This data can be used in a simple tool to see where existing VMT is below the regional average VMT. Using this method, areas where future development can lead to reductions in regional average VMT can quickly be identified without the need for additional data collection. This, however does not calculate mode share.

The MXD Spreadsheet tool which was developed for SANDAG by a consultant provides a tool to estimate the internal capture rate of a site. Based on ITE rates, this methodology is useful for understanding the internal capture rates around a transit station or mixed-use development. The ability to scale this methodology across a large community or area has not been studied or proven valid.

CAPCOA provides a method for quantifying the reduction in VMT (up to a max reduction of 75%) based on the location (urban, compact infill, suburban etc.), housing and employment density, transit accessibility among other factors. It provides simple methodologies with case studies and supporting documentation for VMT reduction values. Data inputs include densities of housing and jobs, distances to downtown or major employment centers, and distance to transit.

The Urban Land Institutes’ July 2009 report titled Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emission provides a methodology to quantify changes in the bicycle mode share resulting from changes in the bicycle network. The methodology requires an understanding of existing and planned bicycle improvements, and existing bicycle commute statistics.

Software packages were also reviewed for their ability to estimate future mode share and VMT reductions. These included the following packages; CarbonFit, GreenScore and GreenTrip. CarbonFit is a CommunityViz based model for estimating Green House Gas emission reduction based on population and employment densities. GreenScore provides methods for estimating impacts on VMT from pedestrian connections among other factors. GreenTrip provides a way to estimate impacts of land use and parking around trolley lines. These three software packages are all considered proprietary, require extensive upfront modelling and data collection, and don’t provide a clear methodology that can be verified at this time.

Table 1 contains a summary sheet of the different literature and software methods reviewed for this study.
<table>
<thead>
<tr>
<th>Model/Method</th>
<th>Source/Information</th>
<th>Data Input</th>
<th>Output/Results</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sketch planning method for estimating bicycle users</td>
<td>NCHRP Report 522: Guidelines for Analysis of Investments in Bicycle Facilities.</td>
<td>Uses NHTS journey to work data to calculate A_d = 0.5% · N_C&lt;br&gt;[ A_d = 0.5% \times N_C ]&lt;br&gt;Where A_d = % of adult population that bicyclists in a day, and N_C = bicycle commute share (from Census data) / Adult Population</td>
<td>Bicycle Commute TripPercentage Commute Trips&lt;br&gt;This method appears to have merit in determining the changes in bicycle mode share based on new facilities in a community and adding density near bicycle facilities. The required data is not extensive.</td>
<td></td>
</tr>
<tr>
<td>SB 745 Sketch Planning Tool</td>
<td>SANDAG - using regional model</td>
<td>Model Inputs, VMT per Capita Population</td>
<td>VMT Identifies existing low VMT areas&lt;br&gt;Provides a simple tool to see where existing VMT is below regional averages, suggesting areas where further development can lead to reductions in the regional average VMT.</td>
<td></td>
</tr>
<tr>
<td>MSTD Spreadsheet</td>
<td>Developed for SANDAG by consultant&lt;br&gt;ITE Trip Generation Manual</td>
<td>Land Use</td>
<td>Internal Trip Capture Rate&lt;br&gt;Allows reduction in trips due to internal trips within a single site&lt;br&gt;Tool which provides a site-specific internal capture based on ITE rates. Internal capture could be presumed to be walking trips.</td>
<td>Potential uses include specific locations such as a transit station, or mixed-use development site, though applications across a large community are limited.</td>
</tr>
<tr>
<td>CAPCOA Transportation</td>
<td>California Air Pollution Control Officers Association&lt;br&gt;Density (Need TAZ or Census Track Average) Housing and Employment Densities Distances to Downtown/Employment Centers Distances to Transit&lt;br&gt;Population Density Employment Density Job/Housing Mix Travel Demand Management Strategies</td>
<td>Unknown, review of software available at a proprietary software&lt;br&gt;Methodology for estimating VMT reductions based on location, housing and employment densities, transit access and other factors used in regional modeling. Potential reductions in VMT of 75% in urban locations.</td>
<td>Percent reduction in VMT&lt;br&gt;Unknown, review of software available at a proprietary software</td>
<td></td>
</tr>
<tr>
<td>CarbonFit</td>
<td>Parson Brinkerhoff</td>
<td>Population Density Employment Density Job/Housing Mix Travel Demand Management Strategies</td>
<td>Unknown, review of software available at a proprietary software&lt;br&gt;CommunityViz based scenario analysis tool for analyzing Green House Gas emissions.</td>
<td></td>
</tr>
<tr>
<td>GreenScore</td>
<td>PlaceWorks</td>
<td></td>
<td>Potential tool for estimating impacts on VMT based on walkability and other transportation factors. Developed by Placeworks as a proprietary model. Model inputs and outputs are unknown. Results cannot be verified or checked.</td>
<td></td>
</tr>
<tr>
<td>GreenTrip</td>
<td>Transform</td>
<td></td>
<td>Community-based planning tool which helps understand impacts of land use and city parking codes on mode choice. GreenTrip's San Diego model is based solely on the TAZ/TAZ lines. Model inputs and outputs are unknown. Results cannot be verified or checked.</td>
<td></td>
</tr>
<tr>
<td>Moving Cooler</td>
<td>Urban Land Institute</td>
<td>Existing and Future Bicycle Facilities Densities (Class I, II, III)&lt;br&gt;Existing Bicycle Mode Share. Where, Future Bicycle Mode Share = Existing Mode Share + Change in Density of Bicycle Facilities (Existing Mode Share)</td>
<td>Future Bicycle Mode Share&lt;br&gt;This fits well for a community-wide analysis as the network density can be calculated through GIS data published by SANDAG.</td>
<td></td>
</tr>
</tbody>
</table>
Literature Review Conclusion

Based on the review of the methodologies for forecasting future mode share, there is no single method which accurately estimates the share of trips taken by bicycling, walking and transit. A combination of multiple methodologies will need to be tested to develop the future mode share for these three alternative modes of transportation.

The recommended methodology for forecasting bicycle mode share is the method presented in the Moving Cooler Report. With an understanding of the existing and future bicycle networks, bicycle facility densities can be calculated (miles of bicycle facilities per square mile). This method accounts for Class I, Class II and Class IV bike facilities traversing areas with qualifying urban densities. According to the study, each additional mile of bicycle facility per square mile accounts for a 1% increase in bicycle commuting.

The simplest and most comprehensive method of understanding reductions in VMT is presented in the CAPCOA methodology. VMT reduction calculations require data with regards to density of housing and employment, and geographic variables such as distance between employment and housing centers.

We recommend applying these methodologies in combination with the travel forecast model results to determine how community plan updates align with the specific Citywide CAP Goals regarding mode share and commute trip length reductions.
B – Methodology
Three methods were used in the estimation of future mode share, and commute vehicle miles travelled for the North Park and Golden Hill Community Plan updates (CPU). The three methods are presented below, along with preferred data collection methods, and alternative sources of data used where further data collection was not available. Sample calculations and a preview of the spreadsheet used in the analysis can be found in Appendix A.

TRAVEL FORECAST MODEL
For the purposes of this study, the following information was pulled from the Series 12 Calibrated Model for North Park and Golden Hill used for the community plan updates. Since Citywide Climate Action Plan (CAP) goals related to mode share were aimed at Transit Priority Areas Citywide, model runs were completed for Transit Priority Areas (TPAs) that fall within each community. The following results from the travel forecast models were used to establish the future year conditions for average trip length (miles) and mode share during the peak period:

- Auto Home-to-Work based trips
- Transit Home-to-Work based trips
- Walk Home-to-Work based trips
- Bicycle Home-to-Work based trips

Using the travel forecast model as a starting point for projecting future conditions, the methodologies outlined below were applied to more accurately forecast changes in mode share and commute trip length.

CAPCOA QUANTIFYING GREENHOUSE GAS MITIGATION MEASURES, 2010
CAPCOA Quantifying Greenhouse Gas Mitigation Measures (2010) provides a methodology for estimating VMT reductions resulting from land uses, policy changes and other factors. Details on the CAPCOA metrics used in the study are provided below, while Table 4 summarizes the metrics reviewed for the study.

CAPCOA LUT-1: Population and Employment Densities
Description:
Reductions in VMT based on changes in population or job densities across a community.
Data Needed:
- Housing Density (housing units per acre)
- Job Density (jobs per acre)
Method:
1) Calculate housing or job density equivalent.
   a. If housing: \( A = (\text{Density} - 7.6) / 7.6 \)
   b. If jobs: \( A = (\text{Density} - 20) / 20 \)
2) Calculate VMT Reduction
   a. \( \% \text{VMT reduction} = 0.07 \times A \)  \( \text{(Max Reduction = 30\%)} \)
Data Source:

- Series 13 model*
  - Housing density
  - Job Density
* Series 13 Forecast model used to calculate housing and job densities due to data availability. Future studies are recommended to use calibrated models for community plan updates

**CAPCOA SDT-1: Pedestrian Facility Enhancements**

Description:

Reductions in VMT based on pedestrian enhancements which provide connectivity and access. Higher reductions for urban locations than rural locations.

Data Needed:

- Sidewalk Network

Method:

Based on a review of community location, existing and planned connections within the community, and to the external network, a VMT reduction is selected from Table 2.

**Table 2: CAPCOA SDT-1 Categories**

<table>
<thead>
<tr>
<th>VMT Reduction</th>
<th>Extent of Pedestrian Accommodations</th>
<th>Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>2%</td>
<td>Connections within study area and to external network</td>
<td>Urban/ Suburban</td>
</tr>
<tr>
<td>1%</td>
<td>Connections within study area, no external connections</td>
<td>Urban/ Suburban</td>
</tr>
<tr>
<td>&lt;1%</td>
<td>Connections within study area and to external network</td>
<td>Rural</td>
</tr>
</tbody>
</table>

Data Source:

- Community Plan

**CAPCOA TRT-1: Voluntary Commute Trip Reduction Programs**

Description:

Reduction in VMT based on participation in a voluntary Commute Trip Reduction Program which can include the following features:

- Carpooling encouragement
- Ride-matching assistance
- Preferential carpool parking
- Flexible Work Schedules
- Vanpool assistance
- Bicycle end-trip facilities (parking, showers)
- Parking cash-out or Priced parking
- Transit Subsidies

Data Needed:

- Study Area Location (low density suburb, suburban center, urban)
- Percent of eligible employees

Method:

% VMT Reduction = A * B

Where:

A = % reduction in commute VMT based on Table 3
B = % of Eligible Employees
Table 3: CAPCOA TRT-1 Categories

<table>
<thead>
<tr>
<th>VMT Max Reduction</th>
<th>Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.2%</td>
<td>Low Density Suburban</td>
</tr>
<tr>
<td>5.4%</td>
<td>Suburban Center</td>
</tr>
<tr>
<td>6.2%</td>
<td>Urban</td>
</tr>
</tbody>
</table>

Data Source:
- Series 13 model (Preferred)
  - Workers in areas
  - Population
- Census Data (Alternative)
  - Residents
  - Employment

CAPCOA TRT-9: Car Share Program

Description:
Reduction in VMT based on the implementation of a car-share program. These car-share programs can be either transit station, residential-, or Citywide-based.

Data Needed:
- Urban or Suburban Context
- Number of Car-share vehicles

Method:
Assigned maximum reduction allowed (0.7% VMT Reduction)
### Table 4: Summary of CAPCOA Measures Considered for Use in Evaluation

<table>
<thead>
<tr>
<th>Measure</th>
<th>Used in this Analysis</th>
<th>Considered in Forecast Model</th>
<th>Apply Method at Project Level</th>
<th>Not Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>A</td>
<td>M</td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>Design</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location Efficiency</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diversity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Destination Efficiency</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Transit Accessibility</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>BMR Housing</td>
<td></td>
<td></td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>Pedestrian Network</td>
<td>A</td>
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<td></td>
<td></td>
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<tr>
<td>Traffic Calming</td>
<td></td>
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<td>P</td>
<td></td>
</tr>
<tr>
<td>NEV Network</td>
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<td></td>
<td>X</td>
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</tr>
<tr>
<td>Car Sharing</td>
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<td></td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Bicycle Network</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Parking Supply Limits</td>
<td></td>
<td></td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>Unbundle Parking</td>
<td></td>
<td></td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>On-Street Market Pricing</td>
<td></td>
<td></td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>Residential Parking Permits</td>
<td></td>
<td></td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Transit System Improvements</td>
<td></td>
<td></td>
<td>M</td>
<td>A</td>
</tr>
<tr>
<td>Voluntary TDM Program</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mandatory TDM Program</td>
<td></td>
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<td>P</td>
<td></td>
</tr>
<tr>
<td>Transit Fare Subsidy</td>
<td></td>
<td></td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>Employee Parking Cash Out</td>
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<td>P</td>
<td></td>
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<tr>
<td>Workplace Parking Pricing</td>
<td></td>
<td></td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>Alt Work Sched/Telecommuting</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TDM Marketing</td>
<td></td>
<td></td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>Employer Sponsored Shuttles/Vans</td>
<td></td>
<td></td>
<td>P</td>
<td></td>
</tr>
</tbody>
</table>

Notes:  
A = Measure was used in the analysis;  
M = Measure is addressed through the travel forecast model;  
P = Measure is more appropriately addressed at Development Review Stage  
X = Measure was not used
MOVING COOLER STUDY: URBAN LAND INSTITUTE, 2009

Description:
Method for estimating future bicycle mode share that results from increased bicycle lane densities. Note: Only length of Class I, Class II, and Class IV bike facilities are calculated.

Data Needed:
- Existing Bike Mode Share
- Existing & Planned Bike Network Density

Method:
1) Calculate Existing and Planned Bike Network Density.
2) Planned Bike Network Density – Existing Bike Network Density = Bike Network Density Change
   a. 1-to-1 relationship between Bike Network Density Change and Mode Share Change
3) Existing Bike Mode Share + Mode Share Change = Future Mode Share

Data Source:
- Community Plan Updates
  o Bike Network (GIS Files)
The analysis results from applying the methodology presented in Section B depict the effect of applying multimodal mobility strategies on commute patterns for the different land use scenarios in the community plan updates (CPU). The results may provide insight to potential future mode shares associated with community plan updates. The table below provide a summary of the results of this analysis for North Park and Golden Hill. The following sections provide a breakdown of each communities existing and future mode share. Appendix B contains graphic demonstrations of the results.

North Park Community

Table 5 provides a comparison of the existing, Citywide Climate Action Plan (CAP) goals, and 2035 mode share after implementation of the proposed community plan.

<table>
<thead>
<tr>
<th>Commute Mode</th>
<th>Existing</th>
<th>CPU 2035 Mode Share</th>
<th>2035 Citywide</th>
<th>CAP Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto</td>
<td>89.7%</td>
<td>58.7%</td>
<td></td>
<td>50%</td>
</tr>
<tr>
<td>Transit</td>
<td>6.2%</td>
<td>19.3%</td>
<td></td>
<td>25%</td>
</tr>
<tr>
<td>Walk</td>
<td>2.4%</td>
<td>11.2%</td>
<td></td>
<td>7%</td>
</tr>
<tr>
<td>Bike</td>
<td>1.7%</td>
<td>10.8%</td>
<td></td>
<td>18%</td>
</tr>
<tr>
<td>Roundtrip Commute Trip Length</td>
<td>25 miles*</td>
<td>19.1 miles</td>
<td></td>
<td>23 miles*</td>
</tr>
</tbody>
</table>

*Source: City of San Diego Climate Action Plan, Dec 2015

The North Park Community will see a dramatic shift in mode share resulting from the implementation of the Community Plan. Transit mode share will more than triple by 2035 accounting for 19.3% of commute trips. This change results from new transit investments, and commute trip reduction strategies. The walk commuter mode share will nearly triple by 2035. Investments in pedestrian facilities along with higher densities of housing and employment contribute to the shift towards walking. Bicycle mode share is expected to significantly increase to nearly 11 percent.

Golden Hill Community

Table 6 provides a comparison of mode share and commute trip length under existing, and Community Plan Update 2035 for Golden Hill in contrast with the Citywide 2035 CAP goals.

<table>
<thead>
<tr>
<th>Commute Mode</th>
<th>Existing</th>
<th>CPU 2035 Mode Share</th>
<th>2035 Citywide</th>
<th>CAP Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto</td>
<td>89.6%</td>
<td>63.7%</td>
<td></td>
<td>50%</td>
</tr>
<tr>
<td>Transit</td>
<td>5.9%</td>
<td>18.3%</td>
<td></td>
<td>25%</td>
</tr>
<tr>
<td>Walk</td>
<td>2.7%</td>
<td>10.1%</td>
<td></td>
<td>7%</td>
</tr>
<tr>
<td>Bike</td>
<td>1.8%</td>
<td>7.8%</td>
<td></td>
<td>18%</td>
</tr>
<tr>
<td>Roundtrip Commute Trip Length</td>
<td>25 miles*</td>
<td>19.7 miles</td>
<td></td>
<td>23 miles*</td>
</tr>
</tbody>
</table>
Similar to North Park, investments in transit and pedestrian facilities result in a large mode shift within the Golden Hill Community. The estimated mode share for walking and transit mode shares each triple. Bike mode share is expected to quadruple by 2035.

**Additional Strategies Contributing to Mode Shift Goals and Reduced Commute Trip Lengths**

Additional programs, bike and pedestrian facilities, or strategies implemented at the project level may be conducive to achieving further reductions in passenger vehicle trips than what is presented herein. Some strategies are more focused on individual development sites and cannot be quantified on a community wide basis. These additional strategies, which will help further the progress towards meeting Citywide CAP goals and are consistent with the community plan include:

- Site design to orient uses toward sidewalks and transit facilities
- Mixed-uses developments that capture internal walk trips
- Improvements to enhance transit accessibility
- Traffic calming to improve the experience for pedestrians and bicyclists
- Bike Share programs
- Project-level amenities consistent with the CAP Checklist (eg; on-site bicycle amenities, TDM Program, preferential parking spaces for carpool and vanpool)
- Bicycle Facilities above and beyond those called for in the community plans
- Improvements associated with Vision Zero goals

It is also important to remember that mobility infrastructure and commuting patterns extend beyond community and city boundaries, so any community-specific projection relies upon assumptions pertaining to the larger regional mobility network. Quantitative precision in achieving reductions in passenger vehicle trips is an exercise that is most appropriately addressed on a Citywide level during the annual monitoring of the CAP as a whole.
Appendix A: Sample Calculations
# FUTURE MODE SHARE WITH IMPLEMENTATION OF COMMUNITY PLANS

## Calculation Methods & Examples

### Existing Mode Share and VMT per Capita

[Diagram showing the calculation methods and examples]

### SANDAG Regional Growth Forecast for Residential and Job Density

- **Ex. VMT Reductions**
  - Residential Density
  - Employment Density

#### CAPCOA LUT-1 VMT Reductions

- **Reductions based on CAPCOA Transmission VMT Reduction Guidelines**
  - Data Source: [CAPCOA Transmission VMT Reduction Guidelines Data Source]

#### CAPCOA SDT-1 VMT Reductions

- **Select a VMT reduction based on location and pedestrian facilities available**
  - Data Sources:
    1. National Household Travel Survey (Census 2014)
    2. SANDAG SR-18 Scenario Per Model
    3. SANDAG Series 12 Community Model
    4. CAPCOA Transportation VMT Reductions
    5. Urban Land Mobility Moving Cooler Report

### CAPCOA TRT-1 VMT Reductions

- **From SANDAG Regional Growth Forecast find residents and jobs in each community**
  - Assuming 50% of population are eligible working employees, a ratio of community employment to working population was found.
  - The ratio was multiplied by the maximum VMT reduction available for a voluntary Community Trip Reduction program to find the assimilated VMT reduction in each community.
Greater North Park Community
Performance Towards Meeting Climate Action Plan Goals

2035 Mode Share

Average Round Trip Commute Trip Length (miles)

**CAP Mode Share Goals**
- Car Mode Share - 50%
- Transit Mode Share - 25%
- Walk Mode Share - 7%
- Bike Mode Share - 18%

*Mode Share reflects peak period commute trips within Transit Priority Area (TPA)*
Greater Golden Hill Community
Performance Towards Meeting Climate Action Plan Goals

**CAP Mode Share Goals**
- Car Mode Share - 50%
- Transit Mode Share - 25%
- Walk Mode Share - 7%
- Bike Mode Share - 18%

*Mode Share reflects peak period commute trips within Transit Priority Area (TPA)*

**Average Round Trip Commute Trip Length (miles)**
- Community Plan Updates (2035)
  - 19.7 miles
- Cap Goals
  - 21 miles
- Existing City Average
  - 25 miles

**2035 Mode Share**
- 57.7%
- 18.5%
- 10.1%
- 7.3%
- 2.7%
- 1.8%