

# Appendix F

Travel Demand Management Assumptions



**STATE ROUTE 885/SECOND AVENUE  
MULTIMODAL CORRIDOR STUDY**

# TRAVEL DEMAND MANAGEMENT ASSUMPTIONS

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This appendix describes the assumptions made to evaluate the effectiveness of Travel Demand Management (TDM) strategies to reduce reliance on single-occupant vehicle trips to help manage congestion levels for the High Level of Growth land use. The following paragraphs describe the level of TDM efforts assumed and their expected level of effectiveness in reducing vehicle trips to the study area during the AM peak period:

- Transit subsidies
- Parking subsidies
- TDM outreach and administration
- Telecommuting, compressed day off, and flex time strategies
- Hazelwood circulator shuttle
- Land use

Two overarching elements infuse the materials described in this appendix:

- TDM strategies generally include transportation services such as improved pedestrian, bicycle, and transit facilities, services, and amenities; as well as municipal, regional, and employer-based outreach and administration. A baseline 2040 level of all TDM programs is already “built in” to the assessment of study area travel patterns for the recommended scenario (including high levels of both land development and transportation system investment). For each of the TDM strategies described above, the analysis considers a pivot from that baseline to an enhanced level of TDM activity.
- The first five categories of TDM policies and services described in this appendix reflect the recommended scenario and build upon each other. The final category of land use explores the effectiveness of shifting the balance of jobs and housing in the study area independent of the other TDM programs. While the first five categories of TDM are recommendations to pursue in conjunction with the plan, the land use category is provided more as a sensitivity test for informative purposes.

## TRANSIT SUBSIDIES

Employer-funded parking and mass-transit subsidies are tax-exempt for employees. Using pretax income, employees can also pay their own mass-transit or workplace parking costs through an employer-sponsored salary deferral program. These expenses include the value of mass-transit passes and van pooling services, and parking on or near the business worksite or a location from which employees commute to work by driving and then using mass transit. In 2019, the maximum eligible transit subsidy was \$265/month. The Society for Human Resource Management estimated that in 2018 only 13% of employers provided subsidies, up from 10% in 2014. The study team assumed that within the study area the transit subsidy participation rate could be increased to 25%.

## **PARKING SUBSIDIES**

As with transit subsidies, employers are allowed to provide up to \$265/month in workplace parking subsidies that can be provided to employees on a tax-exempt basis. Additionally, many employers subsidize workplace parking, whether as a direct benefit wherein market-based parking costs are paid for by the employer (typical for urban sites) or by virtue of the fact that no parking charges are assessed (typical for more suburban sites). Charging employees for the cost of parking has been found to be one of the most effective means for inducing a mode shift for the employee journey-to-work. The primary challenge to workplace parking costs as a TDM measure is the degree to which employers feel the parking charge reduces their competitiveness in the marketplace for hiring good employees; “free” parking is a recognized workplace benefit.

Effective TDM approaches to reduce peak period congestion seek to eliminate parking subsidies by “unbundling” the decision on workplace commuting mode from the job itself. There are two basic approaches to addressing parking costs: increasing the prevailing parking rate and reducing the market penetration of subsidized parking.

For prevailing commercial-use parking rates, the study team reviewed ParkingPanda, SpotHero, and Alco Parking websites to assess activity center parking costs, with the following conclusions on prevailing rates for 9 hours on a weekday (or a monthly lease):

- Downtown Pittsburgh: ~\$20 hourly or ~\$300/month
- Oakland: ~\$15 hourly or ~\$225/month
- Southside: ~\$10 hourly or ~\$190/month
- East Liberty: ~\$9 hourly or ~\$125/month

The study team presumed that at buildout densities, the distance from downtown would lead to market rate parking costs roughly the same as East Liberty, or about \$150/month. As part of a comprehensive and aggressive TDM program for managed parking aimed at limiting auto travel might be able to increase parking rates by about 50% to the \$225/month prevailing in the Oakland area while maintaining development site marketability and competitiveness. From the perspective of parking subsidies, the study team assumed that half of the study area employees would not receive subsidized parking, an aggressive, yet achievable objective.

## **ADDITIONAL TDM ADMINISTRATION AND OUTREACH SERVICES**

TDM administration and outreach is an instrumental element of helping commuters and other travelers understand what travel options are available to them and gain access to those options. TDM administration and outreach services include marketing commute options through both employer and municipal resources and gaining feedback through traveler surveys and direct observations to fine-tune TDM policies and services over time to best meet the needs of the local community. TCRP Report 95 describes the effectiveness of these programs based on a series of before/after studies, and the Federal Highway Administration has developed a TDM assessment tool that applies the TCRP Report 95 findings. This tool indicates that doubling the baseline level of effort (measured in terms of staff hours from both employer-based commuter coordinators and municipal staff focused on a given activity center) can reduce peak period vehicle trip generation rates by about 1.5%

## **TELECOMMUTING / COMPRESSED DAY OFF / FLEX TIME**

The Census Bureau reports that as of 2010 about 3.5% of Pittsburgh residents worked from home on a typical day, about 2 percentage points lower than San Francisco or Atlanta, where work from home rates are the highest. The study team assumed an additional 2.5% work from home for the TDM scenario.

In addition to working from home, many employers support a “compressed day off” (CDO) policy that allows hourly workers to have nine workdays in a two-week period as contrasted with ten workdays; those employees reduce their work-trip travel by 10%. For the TDM scenario, the study team assumed a prevailing baseline rate of 10% eligibility doubling to 20% eligibility

The ability to shift work-based travel from commuting peak periods to off-peak periods through establishment of “core hours” (typically 10 AM to 3 PM) allows some employees to arrive and depart from work either before both morning and evening peak periods or after those periods, spreading travel demand more evenly through the workday when more roadway capacity is available. The study team assumed that the percentage of employees traveling during the peak period could be reduced by 5% from current levels.

Considering that in the AM peak period about half of roadway travel is journey-to-work travel, the combined effects of these three initiatives result in about a 4% reduction in peak period vehicle trips.

## **HAZELWOOD CIRCULATOR SHUTTLE**

The high investment scenario includes bus-rapid transit (BRT) serving the 2<sup>nd</sup> Avenue corridor. In the northern portions of the corridor serving sites such as the Pittsburgh Technology Park, the narrowness of the developed sites (between the Monongahela River and the topographic and infrastructure barriers to the north) means that sites are generally within a quarter-mile walking distance of a 2<sup>nd</sup> Avenue BRT station. In the Hazelwood vicinity, the topography supports a more dispersed development pattern in which many potential residents and workers will be more than a quarter mile from the 2<sup>nd</sup> Avenue BRT, and a frequent circulator shuttle could help provide “last mile” access for all trip purposes and a variety of transit-served destinations. The study team assumed that a circulator route connecting the 2<sup>nd</sup> Avenue BRT stations on the Hazelwood Green site with the Hazelwood community would benefit travelers that are more than ¼ mile walking distance and estimated the degree of mode shift associated with a shuttle running on roughly 10 minute headways (assuming the typical patron would be waiting 2.5 minutes for its arrival) and operating at a 10 MPH speed (incorporating traffic signal delays and station stops).

## **LAND USE**

The assessment of land uses in the study area is summarized separately (see Appendix E).

## ADDITIONAL RESOURCES

The analyses used to examine TDM strategies for the SR 885 study utilized elements from a wide range of resources that readers may find useful for additional information:

- [SPC Draft TDM Strategic Action Plan](#): This document summarizes actions to be taken at a regional level to reduce reliance on single-occupant auto travel and incorporates journey to work trips, other trip purposes and time of day travel, as well as approaches to address non-recurrent congestion due to special events and construction activities.
- [City of Pittsburgh TDM Guidelines for New Developments](#): This document summarizes the criteria for developments that trigger the need for a TDM plan and describes, both contextually and with checklists, the types of information to be contained in the plan
- [TCRP Report 95](#): This compendium of research on Traveler Response to Transportation System Changes, developed over the past two decades in 16 volumes (a summary and 15 topic-oriented reports), is becoming dated but remains an authoritative source on TDM strategy effects.
- [EPA MXD Trip Generation Tool](#): This spreadsheet-based tool, developed by the Environmental Protection Agency in coordination with the San Diego Council of Governments, provides guidance for the degree to which development site context such as development density, diversity, and design (commonly called the “3 Ds”) can be expected to reduce urban infill development site vehicle trip generation below the levels predicted by the ITE Trip Generation resources, which (prior to the 10<sup>th</sup> Edition of Trip Generation) reflected observed vehicular trip-making characteristics of predominantly suburban development sites.

The following sites are also useful compendia of information about TDM:

- [MobilityLab](#): a partnership between Arlington County, Virginia; the Virginia Department of Transportation, and the USDOT
- [USDOT Guidance on Value of Travel Time](#) to derive the \$13.70 / hour value used in the elasticity analysis