ConnectSF

Active Transportation Study – Task 4 Data Profiles Memo

BACKGROUND

This memo details how established metrics in the [Data Framework](#) were re-defined as actual data requests for the Corridor Profiles and how they were analyzed.

In this way, the overarching Data Framework and underlying goals of ConnectSF will be applied across zones, corridors, and corridor segments to develop profiles of the populations and conditions within each geography. The profiles include model data from the trips originating/ending within each geography and the trips traveling through each geography. The purpose of developing such profiles allows comparisons between zones, corridors and corridor segments to identify geographies with the greatest need or potential for mode shift to active modes and to identify geographies that may best align with a particular scenario theme and active transportation typology.

PURPOSE

The purpose of this memo is to provide a definition and analysis process for the metrics by which we will explore and understand the active transportation corridors and zones developed in Task 3 (Geospatial Analysis). This memo is also a companion to the [Zone Profiles](#) & [Corridor Profiles](#), which documents the metrics shown and includes maps for select metrics. This is also a crucial step prior to assembling draft Network Builds in Task 5.

METRICS

Following coordination with the SFS team and SF CHAMP modeling staff, metrics for inclusion in the Zone & Corridor Profiles were modified to better reflect the modeling capabilities of staff.

ConnectSF Goal	Data Framework Metric	How to Measure	Profiles Metric
Equity	Communities of Concern (CoC) coverage	Communities of Concern (CoC) coverage is determined by taking the number of CoC residents in a geography as a proportion of total residents in the geography.	Percent of households in Communities of Concern
			Number of Communities of Concern Households
	Access to destinations (within 30-minute bike trip or less)	Use ArcGIS network analyst tool to measure access to key destinations – grocery stores, K-12 schools, parks – within 500 feet of existing LTS 1 or 2 network	Percent of households with access to key destinations within 500 feet of LTS 1 and 2 network
Environmental Sustainability	Mode share	Mode share is determined from SFCTA's SF-CHAMP model using	Mode share for walking, biking, transit,

		the number of trips (by mode) that have origins and/or destinations for the Traffic Analysis Zones (TAZs) within a geography.	and driving trips (2050)
			Number of trips for walking, biking, and transit (2050)
	Access to Muni Rapid stop within one-mile bike trip	Percentage of residents living within a quarter-mile of a Muni Rapid stop was determined by GIS analysis	Percent of population within ¼ mile of a Muni Rapid stop
	Vehicle congestion on streets	Vehicle congestion data is drawn from the ConnectSF Statement of Needs. Vehicle congestions maps are overlaid on corridor and zone maps.	Map of congested streets within Corridor
Economic Vitality	Population and job density	Population and jobs are pulled from SF-CHAMP land use data for 2015 and 2050 and taken as a proportion of the acres of land they inhabit.	Number of Jobs and residents (2050)
			Percent change in growth of jobs and population between 2015 and 2050
	Regional trips	Regional trips are determined by counting every trip with an origin or destination in a TAZ within the geography and the other end outside San Francisco. This number is then taken as a percentage of the total trips associated with that zone or corridor. The number of regional transit stations within corridors and zones will also be mapped.	Percent of total trips in the Corridor that are regional trips (2050)
			Map locations of regional transit stations within Corridor
	Transit crowding	Transit crowding is taken from the ConnectSF Statement of Needs and overlaid on corridor and zone maps.	Maps of transit crowding for PM peak period within corridors and zones
Safety and Livability	High injury network coverage	The High Injury Network (HIN) is developed by the interagency Vision Zero team and has data on the streets where pedestrian and bicycle collisions occur most frequently. This is mapped and coverage is determined by taking the number of HIN street-miles as a percentage of total street-miles within the geography.	Percent of streets in Corridor also included in the High Injury Network
	Short trips of two miles or less	Short trips are taken from SF-CHAMP modeled data for each TAZ within the zone or corridor. The short trips (2 miles or less) are	Percent of trips in 2050 that are two miles or less

		taken as a percentage of all trips, for both all modes and bike only.	
	Network quality	This metric determines the presence of existing LTS 1 or 2 network in the corridor or zone and the extent of the mileage of LTS 1 or 2 facilities within the corridor or zone. This data was taken from SFMTA's comfort index and analyzed in ArcGIS.	Percent of streets in the Corridor categorized as LTS 1 or LTS 2 quality in 2019 Bike Comfort Index
	High bike ridership	Bike ridership data is from SF-CHAMP to assess the number of bike trips with an origin or destination within a corridor or zone. Originally, this metric was also going to measure pass-through trips via bike along a corridor or zone. Unfortunately, SF-CHAMP does not have bike assignment, which is necessary to estimate bike assignment. The ATS team is exploring whether SFMTA's bike counter data can be used to approximate the volume of bike pass-through trips.	Not included in Profiles
	Trip purpose	Trip purpose data is from SF-CHAMP for all bike trips associated with the TAZs making up a corridor or zone. Because activities have purposes in SF-CHAMP but trips do not, tours were broken up to report trip destination purpose for the first half of a tour and trip origin purpose for the second half of a tour.	Percent of bike trips within Corridor that are made for a Personal or Social purpose
	Slope	Street slope is mapped by SFMTA. The number of street-miles within a zone or corridor at or above 5% slope is taken as a percentage of the total street-miles in the zone or corridor.	Percent of streets within Corridor that have a slope at or above 5%

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The data assembled for the Corridor & Zone Profiles will be utilized in Task 5: Network Scenario Analysis. Some metrics may be analyzed at the corridor segment level if data is available. If no data is available, then data at the zone level will be substituted for corridor segment data. Data at the Corridor Segment level will allow for the assignment of bike network typologies (determined in Task 2) to individual Corridor Segments across all ATS corridors.

In Task 5: Network Scenario Analysis, the project team will develop three separate "Network Builds", citywide bike network buildouts organized along three separate themes. The theme for each Network Build will prioritize certain Data Profile metrics over others, both in terms of Corridor selection as well as in terms of bike network typology assignment. Through this process, the three Network Build scenarios will develop appreciably different bike networks, allowing a thorough and meaningful comparison of their impacts when modeled in Task 6: Draft Recommended Network Scenarios.