City of Bellevue

Transportation Commission Study Session

DATE: February 4, 2021

TO: Chair Marciante and Members of the Transportation Commission

FROM: Kevin McDonald, Principal Transportation Planner, 425-452-4558
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SUBJECT: Multimodal Concurrency

DIRECTION REQUESTED

No Action on Multimodal Concurrency is requested on February 11, 2021.
A recommendation on policy amendments to the Comprehensive Plan and the Traffic Standards Code will be sought at a future study session.

	Action
X	**Discussion**/Direction
X	**Information**

Staff described our recommendation for multimodal concurrency at the Transportation Commission study session on January 14, 2021. On February 11, 2021 Bellevue staff together with our consultants at Fehr & Peers will provide additional information and respond to questions, as we work toward a final recommendation on multimodal concurrency - including recommendations for Comprehensive Plan policy and the Traffic Standards Code - as your deliverables to the City Council. Please feel free to contact me prior to the meeting if you have questions about the agenda materials.

INFORMATION

Staff prepared a recommendation for multimodal concurrency as a key preliminary deliverable for the Mobility Implementation Plan. A final report is attached to this memo, linked here to the document located on the Mobility Implementation Plan web site, and a hard copy of the report has been mailed to each Commissioner.

BACKGROUND

At the introduction of the staff recommendation for multimodal concurrency on January 14, the members of the Transportation Commission raised questions related to the details of how the program would work in Bellevue. Specifically, Commissioners asked how the City would know that the “right network” of transportation supply is being built to meet the demand for person trips. Commissioners also asked about how to measure progress toward transportation system completeness. In this memo, and in the presentation for February 11, staff and consultants will describe how the City would determine the total forecast demand for travel (person trips), identify projects for the supply of mobility to accommodate the growth, and track implementation and performance. The following step-by-step process illustrates how multimodal concurrency would work when applied in conjunction with the Bellevue-Kirkland-Redmond (BKR) travel demand model.

Step-by-Step Sequence Toward Multimodal Concurrency

Step 1. Obtain a growth forecast for population and employment from the Puget Sound Regional Council. This growth forecast provides an estimate of the 12-year demand for person trips/mobility units that will be documented in the Transportation Facilities Plan (TFP).

Step 2. Use the Bellevue-Kirkland-Redmond (BKR) travel demand model to determine how the forecast growth of person trips will affect the multimodal performance of the transportation network. For example:

- Vehicles: Will traffic congestion increase at intersections? Where and for how long?
- Vehicles: Will vehicle speed decrease along arterials? What segments and intersections are impacted?
- Transit: Will the speed of busses on the frequent transit network routes be impacted? What segments of arterials are slow? Which routes are impacted?
- Transit: Where will more people demand access to transit? How many people will use transit and what mode will they use to access transit (walk, bike, park&ride, etc)?
- Pedestrians: Where and about how many more people will be walking? What is the relationship to land use, pedestrian destinations, etc.?
- Bicycles: Where and about how many more people will be biking? What segments of the bicycle network?
- Other modes: How will new capacity expansions by other agencies (e.g., East Link, Metro Connects) affect travel in Bellevue?
- Other measures: How will evolving Transportation Demand Management programs (flex schedules, shuttles, work from home, etc.) affect travel in Bellevue?

Step 3. Extract transportation performance metrics (many of which may be gleaned from the Transportation Commission’s MMLOS Metrics, Standards and Guidelines work and include the examples from **Step 2**) from the BKR model using a “baseline” of projects carried over from the current TFP (no new projects).

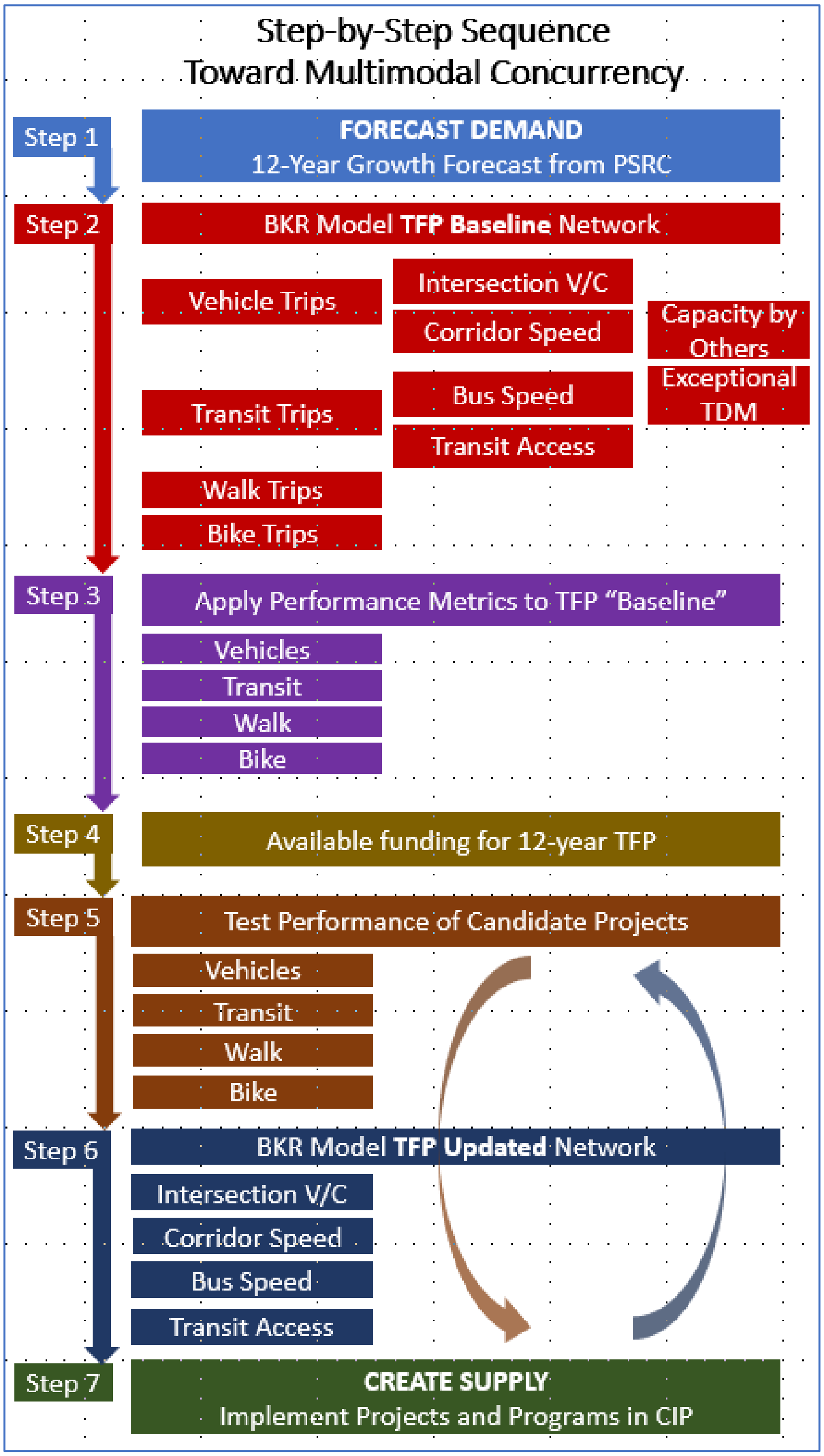
Step 4. From the Bellevue Department of Finance and Asset Management, receive the available funding to build new capacity projects to support growth in the 12-year TFP forecast.

Step 5. Considering information obtained in **Step 3**, along with other transportation performance metrics and feedback from the public and other stakeholders, identify and test candidate projects to improve transportation performance metrics. For example:

- Vehicles: Corridor travel speed and Intersection level of service for vehicles has been degrading over time. Consider projects that would add travel lanes, or signal operation changes (e.g., 150th Avenue SE/SE 37th Street intersection improvements in Eastgate).
- Transit: Bus speed on frequent transit network routes between activity centers is not achieving MMLOS and Transit Master Plan targets. Implement transit signal priority and/or new transit pathways (e.g., Bellevue College Connector or intersection queue jumps).
- Transit: Ridership at a stop is growing or anticipated to grow with forecast land use: improve access routes for people walking and bicycling to access those transit stops, including mid-block arterial crossings (e.g., improved bus stop access in Wilburton).
- Bicycle travel demand grows for high-comfort bicycle network within and between activity areas. Complete the system to serve growth by implementing projects on the Bicycle Priority Network that meet MMLOS level of traffic stress guidelines. Unlike the vehicle mode, the low-stress bicycle network is not complete or continuous. Therefore, investing in bicycle infrastructure based on ridership would lead to under-investment in the system. Therefore, other communities that have a system completeness concurrency standard seek to implement a defined proportion of the bicycle system by the time a certain level of growth is reached. Realistically, this is a policy decision and a commitment to build a basic bicycle system over time, since widespread usage cannot be expected until the system better connects origins and destinations.
- Pedestrian demand in an area grows. As growth occurs and pedestrian destinations are created, improved sidewalks and new mid-block crossings may be needed to meet the guidelines defined in MMLOS. The city and the development community can commit to upgrade sidewalks and arterial crossings concurrent with development. Similar to the bicycle network buildout, most cities with a multimodal concurrency standard seek to implement a portion of the ultimate pedestrian network by the time a certain level of growth occurs—a policy decision and commitment to build out a quality pedestrian network.

Step 6. Re-run the BKR model to document the transportation performance metrics that would be expected with implementation of the projects in the updated TFP network (supply) paired with the expected person trips (demand). It is through this step that the City confirm that the level of investment and the types of projects being invested in will result in transportation performance consistent with expectations. If the results do not meet expectations, then the City may choose different projects and/or change the level of transportation investment. Repeat **Step 5** and **Step 6** until a preferred set of transportation capacity projects is identified.

Step 7. Implement projects through transportation multimodal concurrency program. Project funding for construction in the CIP – includes specific projects as well as programs. See the flow chart and figures below.



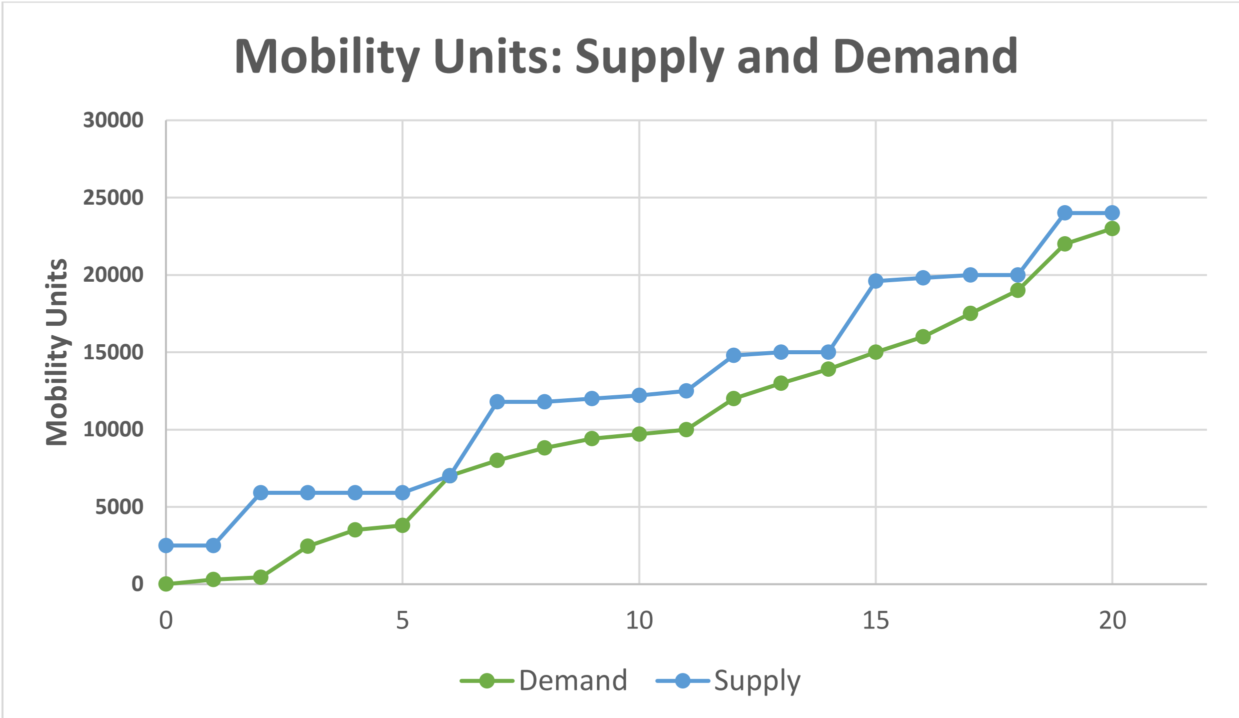


Figure 1 - Results of Concurrency Accounting System Showing that Supply of Mobility Units Exceeds Demand

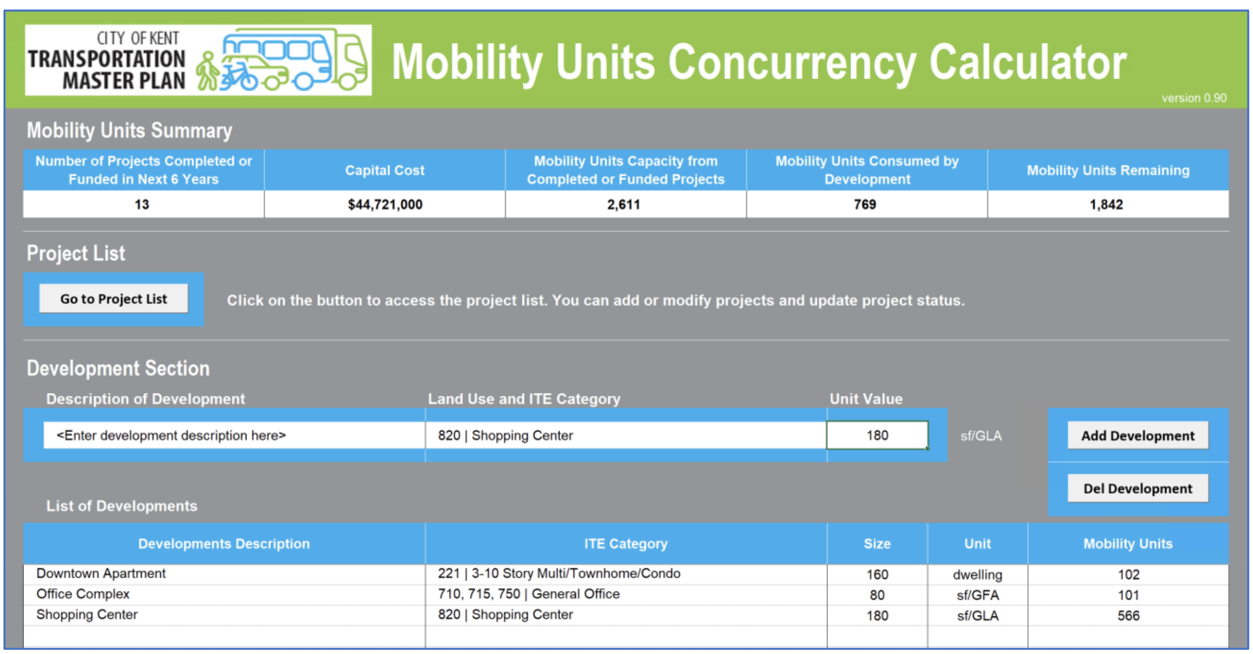


Figure 2 - Concurrency Accounting System Used by the City of Kent Showing the Mobility Units of Demand

Return to Main Dashboard

Mobility Units Remaining
1,909

	Cost Estimate	Concurrency Mobility Units	Numbers of Projects Funded or Complete in next 6 years
Funded or Complete	$ 45,866,897	2,678	16

	Cost Estimate	Concurrency Mobility Units	Number of Projects
Funded	$ 44,721,000	2,611	13
Complete	$ 1,145,897	67	3
Total	$ 476,487,588	27,816	126

Project List

Subarea	ID	Roadway	Project Description	Cost Estimate	Concurrency Mobility Units	Project Status
Downtown	P-88	Willis St	Fill sidewalk gaps across Union Pacific Railroad.	$ 250,000	14.6	
Downtown	P-89	Willis St	Construct pedestrian facility on north side from SR 181 and new Naden Avenue. Crossing improvements at the SR 167 SB off ramp and at the SR 167 NB on ramp.	$ 350,000	20.4	Complete
Downtown	P-90	Willis St	Construct a shared use path on the north side of Willis from Union Pacific Railroad to 4th Ave N.	$ 500,000	29.2	Complete
Downtown	P-91	Willis St	Construct a shared use path on the south side of Willis from Union Pacific Railroad to 4th Ave N.	$ 500,000	29.2	Funded
Citywide	P-92	Multiple Streets	Safety Program	$ 1,500,000	87.6	
Downtown	P-94	Washington Ave	New traffic signal between Meeker St and SR 516.	$ 750,000	43.8	
Downtown	P-95	Central Ave N	Construct new RRFB between Novak Ln and Woodford Ave N.	$ 295,897	17.3	
Downtown	P-96	Central Ave N	Construct new RRFB between Woodford Ave N and E George St.	$ 295,897	17.3	
NEHill	P-97	SE 240th St east of 104th Ave SE	Construct new RRFB east of 104th Ave SE.	$ 295,897	17.3	Complete
SEHill	P-98	104th Ave SE south of SE 256th St	Construct new RRFB between Novak Ln and Woodford Ave N.	$ 295,897	17.3	
NEHill	P-99	108th Ave SE at Panther Lake Library	Pedestrian Hybrid Beacon (PHB) on 108th Ave SE at the Kent Panther Lake Library (20600 block).	$ 630,000	36.8	
West Hill	P-100	Pacific Highway S (SR 99)/S 272nd St	Add new right turn signal head for northbound approach, add overlap to northbound right turn and optimize signal timing.	$ 60,000	3.5	
Downtown	F-1	Multiple Streets	Quiet Zone	$ 3,150,000	183.9	Funded
MIC	F-2	S 259th St	Construct a new trail segment from 5th Ave S to 1st Ave S.	$ 100,000	5.8	Funded
MIC	F-3	S 259th St	Lower S 259th Street under the Union Pacific Railroad bridge to facilitate traffic flow and construct bicycle and pedestrian facilities.	$ 5,000,000	291.9	Funded
MIC	F-4	76th Ave S	Construct drainage, road improvements and fill sidewalk gaps from 1,000 ft south of S 212th St to 2,400 ft south of S 212th St.	$ 5,500,000	321.1	Funded
Downtown	F-5	4th Ave N	Convert from 4 lanes to 3 lanes (Road Diet) from S 228th St to James St. Construct a separated bike lane.	$ 250,000	14.6	

Figure 3 - Concurrency Accounting System Used by the City of Kent Showing Mobility Units of Supply

Progress on implementation of the concurrency system can be measured in several ways:

- <u>Proportion of total cost:</u> This is the simplest and most common way of measuring progress that the City is building the identified transportation system concurrent with new growth.
- <u>Defining policy-based progress:</u> In this case, the City would define the value toward system completeness for each project in the identified transportation system that is based on achieving policy outcomes.

  Bellingham uses this approach (called policy dials) in the downtown and other dense, mixed-use areas; essentially weighting pedestrian and bicycle projects more heavily than auto capacity projects as a way to more quickly ensure buildout of those modal networks.

  Redmond also considered a policy-based weighting to their concurrency system that would have been based on the degree of system completeness (the less complete one of the modal systems was, the greater the policy weight) or to more narrowly weigh projects that would close gaps in the network (e.g., a short bike lane that may not cost much to implement, but connects two large complete portions of the network). Ultimately, Redmond elected to remain with the simple proportional cost approach to reduce the administrative burdens of tracking concurrency.

  Note that staff does not recommend weighting system completeness using either mode shares or the utilization of capacity across all modes of the system. These types of metrics tend to perpetuate the status quo and do not advance system completeness for all modes. They are particularly challenging to apply when considering that there are still large gaps in the pedestrian and bicycle networks that hinder the ability for people to consider or be comfortable using these modes. In contrast, the vehicle network is largely built-out from a connectivity standpoint.

Performance Metrics

A multimodal transportation system completeness approach ensures that Bellevue makes continual progress on building the planned transportation system that is prioritized in each update of the Transportation Facilities Plan and funded for construction in the CIP.

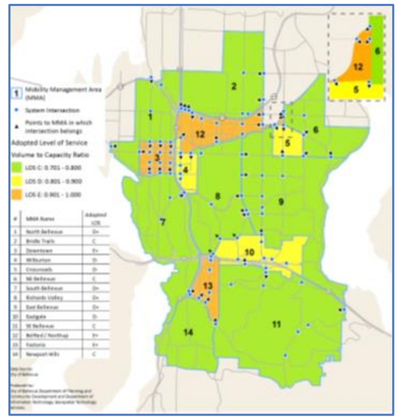
As described in **Step 5** in the previous section, performance monitoring will help identify and prioritize the projects needed to complete the system by addressing the highest priority projects that should be built within the available funding. Performance metrics the Transportation Commission recommended in the MMLOS Metrics, Standards & Guidelines final report will be foundational as summarized in Table 1. The Commission may recommend performance metrics that augment this list with others that would help identify projects and priorities.

Table 1. MMLOS Summary of Metrics and Guidelines (2017 Report)

Mode	Level of Service Metric	Performance Monitoring will Document
Vehicle	Volume/Capacity Ratio at System Intersections	Level of Service varies by neighborhood context and mobility options
	Typical Urban Travel Speed on Arterials	Percent of posted speed limit. Expected Level-of-Service varies by neighborhood context and mobility options
Pedestrian	Sidewalk Width plus Landscape Width	12-feet to 20-feet wide for sidewalk + landscape. Width varies by land use context
	Pedestrian Comfort, Access and Safety at Intersections	Crosswalk spacing along arterials and back of curb design varies by land use context
Bicycle	Level of Traffic Stress on Arterials	Bicycle facilities achieve intended Level of Traffic Stress (LTS) on arterials. Design varies by traffic speed and traffic volume.
	Level of Traffic Stress, or Level of Bicyclist Comfort at Intersections	Maintain corridor Level of Traffic Stress (LTS) through intersections. Design components vary by context.
Transit	Passenger Comfort, Access and Safety	Components vary by transit stop/transit station typology, and land use context
	Transit Travel Speed on Corridors between Activity Centers	14 mph on Frequent Transit Network corridors between Activity Centers

Expanding on the performance metrics in Table 1 by mode:

Vehicle Mode

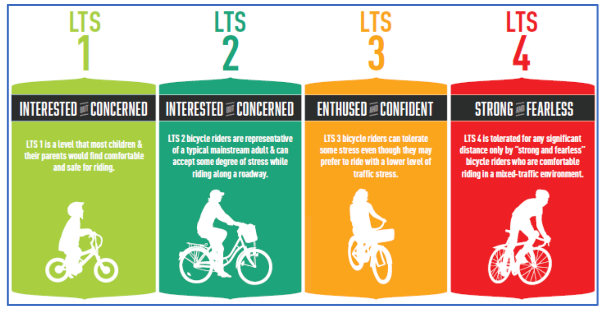


The Commission recommended to retain intersection-based LOS metrics, and establish a new urban corridor travel speed metric. Both intersection LOS and corridor travel speed consider the context of the surrounding land uses and transportation options available. Vehicle mobility is favored in some neighborhoods where density is low, uses are spread out, and mobility options are scarce. Conversely, where land use is dense and mixed, and where transit, walking and bicycling are viable options for many trips, there is acknowledgement and tolerance for traffic congestion. A combined analysis of corridor travel speed and intersection metrics may identify a vehicle congestion issue that should be studied. Unlike the existing concurrency standard (v/c at intersections), this expanded performance methodology would not necessarily require expanding the capacity of an intersection.

Pedestrian Mode

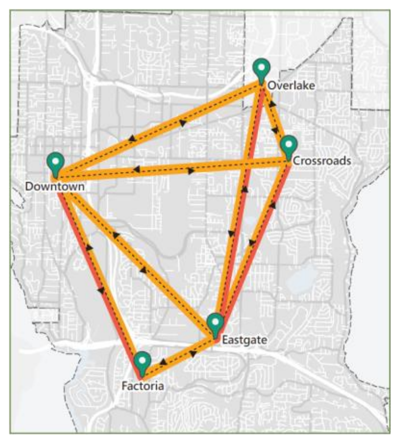
The focus for people walking is on the quality and safety of the pedestrian environment rather than on a congestion metric similar to vehicle LOS. Therefore, pedestrian LOS metrics, standards and guidelines are focused on the design of the "pedestrian network" along arterials. Pedestrian LOS standards and guidelines are based on the context; for example, people in Downtown or near a neighborhood shopping center have a reasonable expectation for a pedestrian environment that provides more space for people and amenities than along an arterial with no specific pedestrian destinations. Pedestrian utilization is a good performance metric that would help prioritize the areas that most warrant pedestrian network enhancements. Pedestrian utilization can be derived from tools like the BKR model and increasingly, observed directly from "big data" sources like anonymous mobile devise tracking and video analytics.

Bicycle Mode



Vehicle volume and speed on arterials are the significant factors that determine the type of bicycle facility needed to achieve an intended level-of-service adjacent to vehicle travel lanes. Bicycle LOS metrics and guidelines intersect the type of facility and the expected quality/safety/comfort of the user experience it provides – this metric is described in the Commission's MMLOS report as the Level of Traffic Stress (LTS). Factors that are not controlled such as topography can be addressed in the type of facility provided – i.e. a climbing buffered bicycle lane and a downhill sharrow lane marking. Metrics and guidelines are applied to the arterial "bicycle network" as identified in the Pedestrian and Bicycle Transportation Plan (2009), or as subsequently modified. For instance, the Council has recently requested staff to prepare a recommendation for a high comfort bicycle network within and between growth areas – this would supersede the project descriptions in the Ped/Bike Plan. Bicycle rider safety and comfort determine the type of facility, while utilization/ridership is a good performance metric that can help prioritize specific bicycle investments.

Transit Mode



Metrics and guidelines are established for transit rider access, transit stop/station components, and some speed and reliability factors that are under the control of the City. While there is no direct quantitative relationship between high quality components of transit access and transit ridership –increased access and ridership are intended outcomes – it is recognized that good access makes transit an equitable and attractive option for people who ride transit by necessity or by choice.

There is a strong quantitative relationship between ridership and transit speed and reliability. The Transit Master Plan describes a target of 14 miles per hour on frequent transit routes between activity centers to boost the competitiveness of transit and attract more riders. Infrastructure or operational interventions can improve speed toward the target.

NEXT STEPS

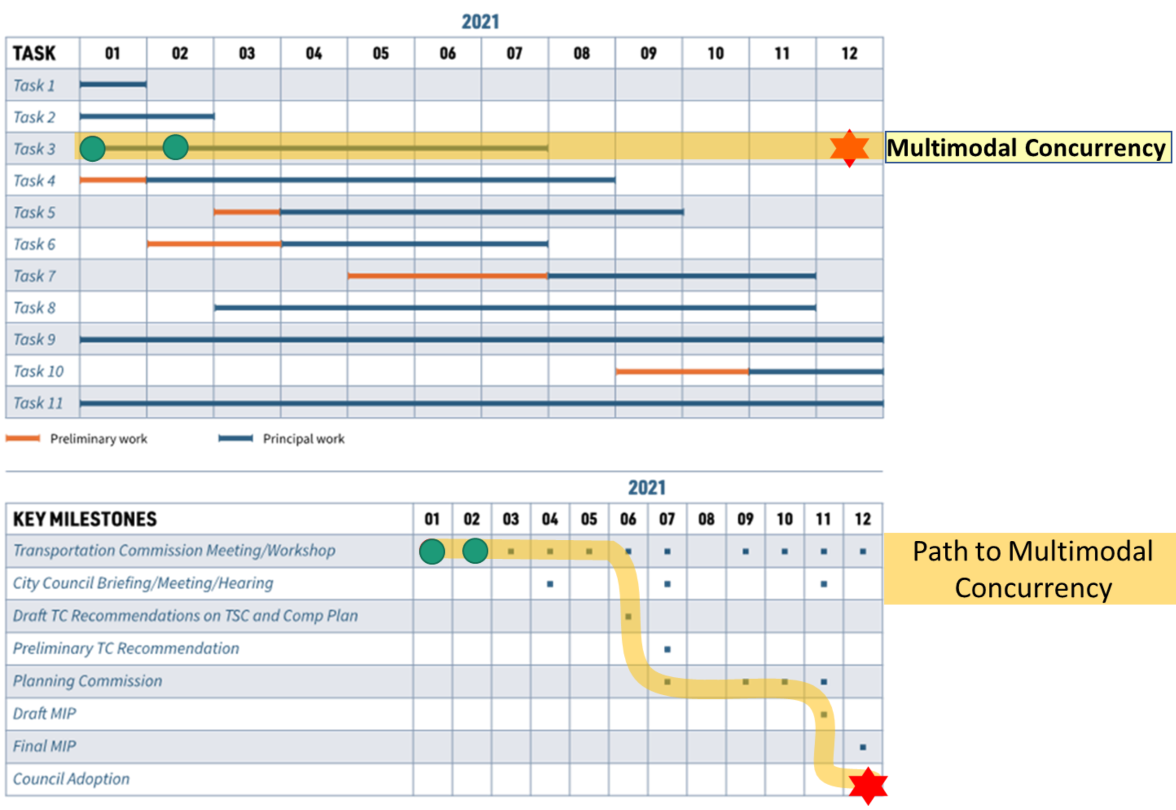
Multimodal Concurrency is a component of the Mobility Implementation Plan that will be a study session item on the Transportation Commission agendas in Q1 and Q2 of 2021. An expected "deliverable" from the Transportation Commission for multimodal concurrency is recommended amendments to the policies in the Comprehensive Plan and the regulations in the Traffic Standards Code. A future step for concurrency will be Commission concurrence on performance metrics.

Staff will soon introduce a suite of recommended policy amendments. To synch up with the Planning Commission process for 2021 Comprehensive Plan amendments, policy recommendations from the Transportation Commission are due to the City Council in Q2, 2021. Then, with Council direction, the Planning Commission will process the recommended transportation policy amendments for final approval by the Council in Q4, 2021.

Traffic Standards Code amendments to implement multimodal concurrency would be transmitted directly to the City Council for approval, intended also for Q4, 2021.

Timeline

The following charts describe the process timelines for the Mobility Implementation Plan tasks and the path for multimodal concurrency toward adoption before the end of the year.



ATTACHMENT

Multimodal Concurrency Staff Recommendation Final Report, January 14, 2021

Link is [HERE]