

Date: April 17, 2020

To: Comprehensive Plan Review Committee Members

From: Christina Day, AICP, Director of Planning

Subject: Follow Up to CPRC Questions Memo #3 (Transportation)

A number of questions have been brought up by CPRC members through the kickoff survey and subsequent meetings. Staff has prepared supporting information and answers to committee questions below. Additional questions will be answered in future memorandums as staff is able to provide the answers.

SUPPORTING INFORMATION

1. Transportation Glossary

The following terms may be helpful as the Committee begins discussion the Transportation topic:
(Sources: Federal Highway Administration [FHWA], Institute of Transportation Engineers [ITE], Pedestrian and Bicycle Information Center, National Association of City Transportation Officials [NACTO], North Central Texas Council of Governments [NCTCOG], City of Plano)

Thoroughfare Plan and Roadway System

- Thoroughfares – Major streets (and their rights-of-way, including improvements between pavement edge and right-of-way line) in urban areas that fall under the conventional functional classifications of arterials and collector streets, excluding limited-access facilities.
- Expressway – A controlled access, divided arterial highway for through traffic, the intersections of which are usually separated from other roadways by differing grades.
- Regional Arterial/Major Thoroughfare/Secondary Thoroughfare (Arterials) – A class of street serving major traffic movements (higher-speed, higher volume) for longer distance travel between major points.
- Collector – A class of street that typically balances traffic mobility and property access. Collector streets provide land access and traffic circulation within residential neighborhoods, commercial and industrial areas. Collector streets distribute trips from the arterials through the area to the ultimate destination.
- Local Street – Streets with a low level of traffic mobility, intended solely for access to adjacent properties. The location and alignment of local streets are not regulated by the Thoroughfare Plan but rather through the subdivision development process.
- Intelligent Transportation System (ITS) – The application of advanced technologies to improve the efficiency and safety of transportation systems.
- Multimodal – The availability of transportation options using different modes within a system or corridor, whether it be walking, bicycling, driving, or transit.

Bicycle and Pedestrian Transportation

- Trail/Shared-Use Path – Physically separated from roads, trails or shared-use paths are accessible two-way paths designated for use by both bicyclists and pedestrians.

- Bike Lane – A Bike Lane is defined as a portion of the roadway that has been designated by striping, signage, and pavement markings for the preferential or exclusive use of bicyclists. Bike lanes may be designed as buffered or separated facilities with marked or physical separation elements.
- Bike Route/Shared Lanes – On bike routes with shared lanes, bicyclists ride in mixed traffic. These routes should typically be reserved for routes with low traffic volumes and roadways with operating speeds of 35 miles per hour or less.
- Safe Routes to School – [Safe Routes to School](#) is a nationwide initiative established in 2005, focused on encouraging and enabling more children to safely walk and bicycle to school, thereby improving student health and traffic congestion around schools.
- Americans with Disability Act (ADA) – The Americans with Disabilities Act (ADA) became effective in 1991. It is a civil rights law that provides for, and protects, equal opportunity for individuals with disabilities. The City of Plano, by this federal civil rights law, is required to conduct an [ADA Self-Evaluation and Transition Plan](#). The Plan, in simple terms, is an assessment of the level of ADA compliance and an action plan for improving accessibility.

Transit

- Bus Transit – Bus is a mode of transit service characterized by roadway vehicles powered by diesel, gasoline, battery, or alternative fuel engines contained within the vehicle. Vehicles operate on streets and roadways in fixed-route or other regular service. Types of bus service include local service, express service, limited-stop service, and bus rapid transit (BRT).
- Light Rail Transit – Light Rail is a mode of transit service operating passenger rail cars on fixed rails in right-of-way that is often separated from other traffic for part or much of the way. Light rail vehicles are typically driven electrically with power being drawn from an overhead electric line.
- Streetcar – Streetcar transit operates with vehicles similar to light rail transit and often operate within the same street right-of-way as automobiles. Streetcar service also tends to include more closely spaced stops, similar to local bus service.
- Commuter/Regional Rail – Commuter Rail is a mode of transit service characterized by an electric or diesel propelled railway typically serving longer lines with fewer stations and lower frequency of service.

Other Transportation Terms and Concepts

- Traffic Impact Analysis (TIA) – A [Traffic Impact Analysis \(TIA\)](#) develops public/private partnerships to coordinate land use and transportation facility development. Both the City of Plano and the land developer share in the responsibility to consider all reasonable solutions to identified transportation problems. The TIA study looks at development size and use and determines the effect of that use on the existing roadway system.
- Vehicle Miles Traveled (VMT) - Vehicle miles traveled (VMT) measures the amount of travel for all vehicles in a geographic region over a given period of time, typically a one-year period.
- Mode Share – Mode share is the share of people using a particular mode of transport.
- Transportation Demand Management (TDM) – Transportation demand management (TDM) is defined a set of strategies aimed at maximizing traveler choices. This typically includes providing travelers with travel choices, such as work location, route, time of travel and mode.

2. Transportation Data and Presentations

Transportation Town Hall; May 9, 2019:

- Video: <http://planotx.swagit.com/play/05092019-1649>
- Presentations from:
 - NTTA, Elizabeth Mow, Assistant Executive Director of Infrastructure, starts at 3:38

- DART, Todd Plesko, Vice President of Service Planning and Scheduling, starts at 5:30
- LegacyConnect, Glenn Gadbois, Executive Director, starts at 9:40
- Collin County, Duncan Webb, Commissioner - Precinct 4, starts at 12:50
- Town Hall Q&A starts at 16:50

DART Quarterly Update, December 17, 2019:

- Video: <http://planotx.swagit.com/play/12172019-2977/#4>
- Presentation from Gary Thomas, Executive Director of DART, starts at 30:25

Pavement Management Plan Presentation, May 28, 2020:

- Video: <http://planotx.swagit.com/play/05282019-2589/#7>
- Presentation from Public Works Assistant Director Dan Prendergast, starts at 32:15

Public Works Presentation, March 17, 2020:

- Video: <http://planotx.swagit.com/play/03172020-1726/#13>
- Presentation from Public Works Director Gerald Cosgrove, starts at 46:26
 - Agenda Item and Attachments: <https://plano.novusagenda.com/agendapublic/CoverSheet.aspx?ItemID=2045&MeetingID=1003>

Engineering Departmental Presentations, July 23, 2018:

- Video: <http://planotx.swagit.com/play/07232018-1340/#7>
- Community Investment Program (CIP) Presentation from Engineering Director Caleb Thornhill, starts at 5:51
 - Agenda Item and Attachments: <https://plano.novusagenda.com/agendapublic/CoverSheet.aspx?ItemID=2045&MeetingID=1003>
- Traffic and Transportation Engineering Division Presentation from Transportation Engineering Manager Brian Shewski, starts at 19:12
 - Agenda Item and Attachments: <https://plano.novusagenda.com/agendapublic/CoverSheet.aspx?ItemID=1894&MeetingID=1003>

3. DART

Dallas Area Rapid Transit (DART) is a regional transit agency authorized under Chapter 452 of the Texas Transportation Code and was created by voters and funded with a one-cent local sales tax on August 13, 1983. The service area consists of 13 cities: Addison, Carrollton, Cockrell Hill, Dallas, Farmers Branch, Garland, Glenn Heights, Highland Park, Irving, Plano, Richardson, Rowlett, and University Park. As of March 2020, DART serves its 13 Service Area cities with 148 bus or shuttle routes, 13 On-Demand GoLink zones, 93 miles of light rail transit (DART Rail), and paratransit service for persons who are mobility impaired.

Current major DART initiatives include:

- System Wide
 - DART is updating the Transit System Plan, which will outline agency capital and operating priorities through year 2045, with a focus on Mobility as a Service (MaaS), new services and programs, and optimization of the current system.
- Bus Service
 - Following the October 2018 Service Standards update, including addition of a new Core Frequent Route category, the DART Board authorized a new Bus Service Plan

effort. Called the DARTZoom Bus Network Redesign, this effort includes extensive public and stakeholder input and will be complete in Spring 2021 to guide bus network changes in 2022 and beyond.

- Light Rail Transit Service
 - Red/Blue Line Platform Extensions are under construction in 2019 and will be completed in 2022 to allow for 3-car operations to address crowding during peak times.
 - DART continues to advance transit-oriented development (TOD) initiatives through an update of its TOD Policy and new TOD Guidelines.
- Streetcar
 - DART is preparing a Streetcar Master Plan as an element of the Transit System Plan which will identify potential expansion opportunities.
- Commuter/Regional Rail
 - The Silver Line Regional Rail project (in the Cotton Belt corridor) is in the design-build phase and is expected to open by December 2022. The Silver Line will provide east-west service through seven cities along a 26-mile corridor from Plano to DFW International Airport.

The [March 2020 DART Reference Book](#) compiles the latest information on the DART system, including information on ridership, operations, facilities, and budget.

4. Studies for Reference

The following reports and studies are included in your packet for your reference:

- Legacy Business Area Mobility Study Report
<https://content.civicplus.com/api/assets/tx-plano/a95dd658-cf1d-41a3-b3b4-a59d7b2620ef/legacy-business-area-mobility-study-report-november-2016.pdf>
- Bicycle Opinion Survey (Executive Summary Only)
<https://www.nctcog.org/trans/about/news/current-press-releases/survey-north-texans-want-more-dedicated-bike-lane>
- ADA Self-Evaluation and Transition Plan
<https://www.plano.gov/405/ADA-Self-Evaluation-Transition-Plan>
- Parks Master Plan
<https://www.plano.gov/762/Park-Master-Plan>
- DART studies
<https://dart.org/about/publications.asp>
- DART Current and Future Services Map
<https://dart.org/maps/currentandfutureservicesmap.asp>
- NCTCOG Mobility 2045
<https://www.nctcog.org/trans/plan/mtp/2045>
<https://www.nctcog.org/nctcog/media/Transportation/DocsMaps/Plan/MTP/Mobility2045-Executive-Summary.pdf>
- DART Transit System Plan
<https://dart.org/about/expansion/transitsystemplan.asp>
- Envision Oak Point
<https://www.plano.gov/1339/Envision-Oak-Point>

See pages 49-60 of [Chapter 4: Recommendations](#) for goals, policies, and actions related to mobility in Oak Point.

ANSWERS TO CPRC QUESTIONS

1. What does “all modes of transportation” mean?

The **Roadway System Policy** states that *“Plano will develop an integrated, multimodal transportation system, through the utilization of technology and innovative concepts that improves the safety and efficiency of the roadway system for all users.”* The RS4 action states that Plano will *“Review and update roadway standards to accommodate all modes of transportation.”*

“Modes of transportation” includes the variety of possible users of the city’s roadways. These can include people driving cars, motorcycles, commercial freight trucking, walking, bicycling, and utilizing transit or rideshare services. Traditional roadway design and construction has prioritized accommodation of vehicles, with little to no consistent accommodation of alternate modes or safety of vulnerable roadway users, such as pedestrians, people with disabilities, and cyclists. Updated roadway standards would provide new options for designing streets to better accommodate multiple modes of transportation and provide transportation solutions appropriate for surrounding development. For example, in areas where destinations are located within a walking or transit-oriented scale, roadway standard options can include design elements that better balance safety and convenience for pedestrians, transit riders, and drivers.

2. How would you measure “good transportation”?

Various performance measures can be used to quantify the quality of a city or region’s transportation system. These often include goals related to mobility, safety, the environment, the economy, and social equity. For example the United States Environmental Protection Agency (EPA) has developed a guide of transportation performance measures that may be useful in evaluating transportation decisions against desired goals. These performance measures include:

- Vehicle Miles Traveled (VMT) per Capita – the amount of vehicle activity per person; reducing per capita VMT can help a region achieve air quality, climate change, and congestion reduction goals
- Average Vehicle Occupancy (AVO) – the average number of people in each vehicle; higher AVO impacts congestion levels, overall emissions, and transportation system affordability
- Mixed Land Uses – Locating activities closer together can reduce trip lengths, increase opportunities to combine trips, and allow trips to be made by walking and bicycling rather than by driving.
- Transit Accessibility – the relative convenience of transit as a mode choice
- Transit Productivity – how much travelers use the transit service (return on investment)
- Bicycle and Pedestrian Mode Share – opportunities for travelers to choose walking or biking for work, non-work, or recreational trips
- Bicycle and Pedestrian Activity and Safety – bicycle/pedestrian counts and number of crashes over time
- Bicycle and Pedestrian Level of Service – the quality of service from the perspective of a bicyclist or pedestrian, which includes comfort and perceived safety
- Transportation Affordability – measures the cost of transportation relative to income

3. Define parking maximums and explain the necessity

The **Transit-Oriented Development (TOD) Policy** states that *“Plano will proactively encourage and incentivize development within walking distance of existing and future rail stations or bus transit centers to create an integrated mix of uses including residential, employment, retail, and civic spaces.”* The TOD4 action states that Plano will *“Establish parking maximums in transit-served areas and identified Compact Complete Centers.”*

Conventional zoning practices typically include minimum parking requirements to ensure enough room for cars that may need to park at each development type. This can result in large parking lots or garages required for each development. In transit-oriented areas, parking demand is typically lower and large parking areas could be utilized for more productive land use activity.

Parking ratios and standards can take into account walkability and the convenience and availability of transit options. In a transit-oriented environment, it is important to use land efficiently to support pedestrian trips. Reduced off-street parking requirements or parking maximums frees up space for additional development or other uses accessible within a walking distance from a transit station. Structured parking is expensive to build and parking requirements that are too high can impact the feasibility and affordability of transit-oriented development.

[Cities across the country](#) utilize this approach, and strategies to limit the construction of parking lots that are larger than necessary can vary. Examples include:

- Charlotte, NC – sets minimum and maximum parking standards within transit-oriented development districts. Exceptions are permitted to reduce the minimum or exceed the maximum under certain conditions.
- Denver, CO – requires developers to ask special permission to include parking above the parking minimum within special districts.
- Hartford, CT – removed parking minimum requirements downtown to make it easier for developers to rehab downtown buildings by not having to add parking as part of redevelopment.

4. What is a journey to work trip?

The **Transportation Demand Management Policy** states that *“Plano will utilize Transportation Demand Management to improve air quality, reduce journey to work trips, and mitigate traffic congestion.”*

The U.S. Census Bureau defines a “journey to work” trip as a worker’s travel from home to work. These trips can include many methods of travel:

- Driving a personal vehicle
- Riding transit
- Riding a bicycle
- Walking
- Working from home (telecommuting)

Transportation demand management (TDM) seeks to reduce the reliance on personal vehicles for journey to work trips and create competitive options for travel. Some TDM programs can target a particular area, such as the work being done by the [Legacy Area Transportation Management Association](#), an organization engaging locally in TDM to stagger trips and promote telecommuting to reduce demand.

Land use decisions also go hand-in-hand with successful transportation demand management. For example, minimizing distances between jobs, housing, and services can shorten driving trips or reduce the need for driving trips. Additionally, small street block sizes, activated ground floors, and improved multimodal access can support travel choices by foot, bike, or transit.

5. How many Plano residents use DART?

Unfortunately, the information on the residency of DART ridership is collected primarily through random sampling. City staff does not have this information available at this time, but does have information regarding ridership in Plano.

Average weekday ridership for Plano's light rail transit stations in FY2019 are as follows:

- Parker Road – 3,325
- Downtown Plano – 660

Parker Road Station currently has the 5th highest ridership within the light rail system, and the highest ridership outside of the Dallas Central Business District. Total average weekday light rail transit ridership across the DART network is 92,700. Total average weekday bus ridership across the DART network is 138,300.

6. What would second-tier membership of DART entail?

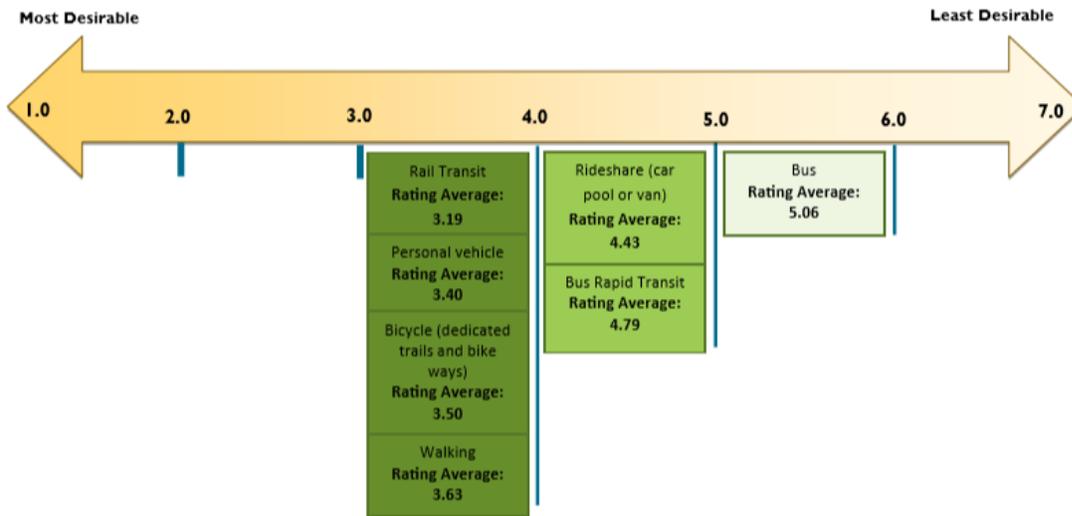
Regarding service agreements with cities outside of the DART service area, DART's Policy III.07 enables DART to develop service agreements with cities outside of the DART service area for rail, bus or paratransit services. A key element of the policy is that within the first 36 months of service DART and the City shall jointly fund and prepare a transit system plan and a supporting financial plan for the municipality or county that includes projected costs and revenues and includes a plan for becoming a DART member. Currently DART does not have a policy to provide "second tier membership", however DART is continuing to discuss additional opportunities for service outside the DART service area boundary.

7. Is there a demand for bicycling in Plano? Is there a demand for more pedestrian and bicycle oriented development?

Through the Plano Tomorrow [Public Outreach Process](#), which included a public online survey with 1,375 participants, positive feedback was received regarding existing bicycle infrastructure and the demand for additional facilities. Plano residents ranked bicycle facilities similarly with automobile and walking as desired transportation choices for increased access today and in the future.

10. Identify your top preferences for transportation choices you would like to see increase today and in the future.
Most Desirable = 1.0, Least Desirable = 7.0
 Answered Question: 1,258

Answer Options	Rating Average
Rail Transit	3.19
Personal vehicle	3.40
Bicycle (dedicated trails and bike ways)	3.50
Walking	3.63
Rideshare (car pool or van)	4.43
Bus Rapid Transit (limited stops between major destinations within dedicated bus lanes)	4.79
Bus	5.06



Section I - Survey Results

When asked about “Favorite Places in Plano”, “bike trails and greenbelts” were popular responses in the survey. The desire for bicycle facilities (dedicated lanes, trails, routes) was a common comment on the final open response question in the survey.

Additionally, in the Parks and Recreation Plan online and telephone surveys, 86%, or 2,970 respondents, said it was very important or important for the city to construct more trails in the next 5-10 years. The city’s trail counter program has indicated a steady increase in trail use between 2015 and 2017. Counters are located on seven city trails to measure how and when trails are used:

- 2015 total: 507,574 (261,463 pedestrians and 246,111 bicyclists)
- 2016 total: 541,055 (288,946 pedestrians and 252,109 bicyclists)
- 2017 total: 549,851 (303,121 pedestrians and 246,730 bicyclists)

In 2017, the North Central Council of Governments (NCTCOG) commissioned a [Bicycle Opinion telephone survey](#) of residents to capture the views of the public-at-large about bicycle use across the region to help guide future bicycle plans and projects that affect bicyclists. An additional 200 interviews were conducted with Plano residents to measure local opinions compared to the region. Key findings from the Plano surveys include:

- Nearly half, 48%, of respondents had bicycled at least once in the past 12 months. This was a greater proportion than had been observed in the NCTCOG region as a whole, 36%.
- Spring and fall were the most popular time of year for bicycling, while winter was the least likely time for bicyclists to go for a ride.
- A majority of respondents (66%) indicated that there are “too few” on-street dedicated bike lanes in their communities.

- More than 60% of respondents considered improvements to increase bicycle access to be “essential” or “very important” for their community.

The current Comprehensive Plan Roadway System Action Statements include a recommendation to develop a transportation plan that addresses bicycles and pedestrians as a mode of transportation. A multimodal transportation planning process can assess current bicycling and walking interest levels, levels of comfort, and barriers to potential multimodal trips in the city. Bicycle and pedestrian needs, comfort levels and preferences can vary greatly throughout a community, and a robust public engagement process can identify and prioritize an appropriate set of improvements to meet the needs of interested multimodal trip users.

8. How can you retrofit streets never designed for bikes?

Accommodating people riding bikes on suburban arterial roadways and creating facilities that are comfortable for a wide range of riders can be a challenge, but there are emerging best practices and examples from cities with similar roadways. Latest national best practices include the Federal Highway Administration (FHWA) [Bikeway Selection Guide](#) and the National Association of City Transportation Officials (NACTO) [Urban Bikeway Design Guide](#). Latest guidance includes that cyclists should not be expected to share lanes with vehicles traveling over 35 MPH. Depending on surrounding land uses, expected demand, and available right of way, separated bike lanes or shared-use paths adjacent to the roadway may be appropriate solutions. Intersection design should also be evaluated to make crossings of both bicyclists and pedestrian safe and intuitive. As certain areas redevelop over time, it may be possible to add new minor street connections to provide additional bicycle and pedestrian routes separate from major thoroughfares.

9. What bike usage is expected for main transportation especially in summer heat?

In the 2017 NCTCOG Bicycle Opinion Survey, hot weather was the reason most frequently cited by City of Plano residents as an impediment to biking, mentioned by about two-thirds of respondents (62%). While hot weather conditions may be a deterring factor for some riders, overall demand can increase during cooler seasons, and bike facilities should be planned and prioritized for all types of riders and trip purposes. Ongoing public engagement about bicycle interests and needs can help the city prioritize the best locations and types of bike facilities for all riders. For example, bicycling for transportation (i.e. commuting to work or other utilitarian trips) is often most efficient for trips of shorter distance (a few miles or less), so facilities for this trip type may be most beneficial in areas where people can travel between destinations that are relatively close together. Alternatively, recreational cyclists may be more interested in cycling longer distances using trails, sidepaths, or separated bike lanes and in a wider range of weather conditions.

10. Do other communities have extensive trails to connect?

Regarding regional trail connectivity, essentially every neighboring community has planned or existing trails that the City of Plano can connect to, with some cities being further along than others with trail system implementation. The North Central Council of Governments (NCTCOG) maintains a [Regional Veloweb](#) plan to promote these intercity trail connections. Some of the existing neighboring trails that Plano does not currently have a connection to include the Preston Ridge Trail in Dallas, the Renner and Spring Creek trails in Richardson, and the Cottonwood Creek/Mustang Creek trails in Allen. The NCTCOG [2020 Highlighted Regional Trails of North Texas](#) identifies over 300 miles of regional trails including new connections in progress over the next few years.