City of Houston

MAJOR THOROUGHFARE AND FREEWAY PLAN

POLICY STATEMENT

Amended 01-2024

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I. Preface

The City of Houston Planning Commission's Major Thoroughfare and Freeway Plan (MTFP) is an effective instrument in guiding development, as well as providing mobility and accessibility to a large number of people who reside and work in the greater Houston area.

Houston's Major Thoroughfare and Freeway Plan was originally adopted in 1942. It has undergone many refinements since its first publication and is an example of a respected working document that has a daily impact on the growth and development of the City and extraterritorial jurisdiction. This territory of influence comprises the properties within the Houston city limits, most of the unincorporated area in Harris County, and portions of Fort Bend, Waller, Montgomery, and Liberty Counties. This area includes nearly 2,000 square miles.

The MTFP has been generally accepted as the basic guideline for the implementation of major thoroughfare and highway improvements by other governmental agencies within the jurisdiction of the City of Houston, including the district offices of the Federal Highway Administration (FHWA) and Texas Department of Transportation (TxDOT). The plan has acted for many years as a significant and an informal catalyst for securing close intergovernmental cooperation between those governmental agencies responsible for providing direction in the planning, construction, and maintenance of transportation projects in the greater Houston area.

The Houston Planning Commission and the Planning & Development Department (P&D) staff have, for many years, tried to observe certain basic policies and theories related to the administration and implementation of the MTFP. These policies have evolved through use and have not been fully reflected in writing or made a part of the Commission's adopted rules. The purpose of this document is to set forth in writing the theories and policies which guide the members of the Planning Commission and staff in the administration, refinement, and interpretation of the MTFP through Chapter 42 of the Code of Ordinances and the Houston Public Works' (HPW) Infrastructure Design Manual (IDM). This policy will continue to evolve as the City changes.

II. Background and Theory

Streets and highways form the basic subdivision of land and represent the skeleton. Houston is a city where most of its growth and development has occurred in the age of the automobile. Houston has enjoyed a high degree of mobility, dependent upon motor vehicles as the basic mode of transportation. The maintenance of maximum mobility and accessibility is the basis for the Planning Commission's MTFP. Since its adoption in 1942, and through its many refinements, the Plan has been a significant guideline in the formation of the physical characteristics and development pattern of this city.

III. Planning Concepts

The Planning Commission's MTFP is a graphic illustration of the functional classifications of the street and highway network within the City and its Extraterritorial Jurisdiction (ETJ). Per the FHWA, functional classification is "the process by which streets and highways are grouped into classes, or systems, according to the character of traffic service that they are intended to provide. All streets and highways are grouped into one of these classes, depending on the character of the traffic (i.e., local, or long distance) and the degree of land access that they allow." The classifications represented in the MTFP relating to FHWA Functional Classification Guidelines are described in the section below and include:

- Freeways/Tollways
- Major Thoroughfares
- Transit Corridor Streets
- Collector Streets
- Local Streets

A. Street Classification[1]

1. Freeways/Tollways:

Freeways and Tollways are devoted entirely to traffic movement, with little or no direct land service function. This class includes Interstate Highways and other freeways, expressways, and tollways that are characterized by multi-lane, divided roadways with a high degree of access control and few, if any, intersections at grade. Full or partial control of access distinguishes Freeways/Tollways from Major Thoroughfares. Freeways/Tollways serve large volumes of high-speed traffic and are primarily intended to serve long trips, including both vehicles entering and leaving the Houston area and major circulation movements.

2. Major Thoroughfares:

Major Thoroughfares are divided into two classifications: Principal Thoroughfare and Thoroughfare. Major Thoroughfares are those streets designed for fast, heavy traffic, and are intended to serve as traffic arteries of considerable length and continuity throughout the community. The location of these streets is based on a grid system covering the area within the City's jurisdiction, which provides a theoretical spacing of Major Thoroughfares at one-mile intervals. This grid system, of course, must be modified to be compatible with various physical features, such as radial highways and railroads, property ownership patterns, topographical conditions, and existing developments.

To maximize mobility, streets designated as Major Thoroughfares generally require a wider right-of-way, typically 100 feet, and are designed to accommodate dual multi-lane roadways. They can be separated by an esplanade and can contain protected left-turn lanes at intersections where significant left-turn movement is anticipated.

In general, right-of-way, paving, and drainage for new Major Thoroughfares are provided by the subdivider or developer as part of the overall subdivision plan approved by the Planning

[1] *Note: All references to speed are meant to match the signed speed limit; in no way is exceeding the signed speed limit the intent of the MTFP.*

Commission, with the alignment of any designated major thoroughfare also being in general conformance with the Commission's MTFP. In some instances, Major Thoroughfares are constructed by the City or County. There may be a demonstrated need to improve an existing roadway, develop such thoroughfares through property that may not be suitable to subdivide, or when it is desirable, to complete a connection between two segments of major thoroughfare. In these cases, the right-of-way standards described above are used as the basis for any public development of major thoroughfares.

a) **Principal Thoroughfare:**

Principal Thoroughfares are public streets that accumulate traffic from collector streets and other Major Thoroughfares for distribution to the freeway system. They may be a highway and typically provide a high degree of mobility for long distance trips.

Principal Thoroughfares generally serve high-volume travel corridors that connect major generators of traffic such as: the central business district, other large employment centers, suburban commercial centers, large industrial centers, major residential communities, and other major activity centers within the urban area.

b) **Thoroughfare:**

Thoroughfares are public streets that accumulate traffic from Collector streets and local streets for distribution through the thoroughfare and freeway system. These streets distribute medium to high volume traffic and provide access to commercial, mixed use and residential areas.

3. Transit Corridor Streets:

Transit Corridor Streets are a rights-of-way or easements that METRO has proposed as a route for a guided rapid transit or fixed guideway transit system and that is included on the City's MTFP.

4. Collector Streets:

Collector Streets are public streets that accumulate traffic from local streets for distribution to the Major Thoroughfare streets. A Collector Street may be a Minor Collector or a Major Collector. Collectors Streets are designed to provide a greater balance between mobility and land access within residential, commercial, and industrial areas. The makeup of a collector facility is largely dependent upon the density, size, and type of abutting developments. Posted speed limits on collector facilities generally range between 25 and 35 mph. Traffic volume and capacity can range from 5,000 vehicles per day on a two-lane facility, up to 20,000 vehicles per day on larger multi-lane facilities. Emphasizing balance between mobility and access, a collector facility is designed to better accommodate bicycle and pedestrian activity while still serving the needs of the motoring public.

a) **Major Collector:**

Major Collectors are public streets that accumulate traffic from local streets and Minor Collectors for distribution to the Major Thoroughfare. A Major Collector street may have commercial, residential or have mixed uses abutting.

Major Collector streets typically provide mobility and access to commercial, mixed use and medium to high density residential uses. Direct vehicular access to single family residential uses is not desirable. Street character may vary based on context, i.e.: Urban or Suburban. These streets typically serve pedestrian, bicycle, and local transit routes. Goods movement is limited to local routes and deliveries.

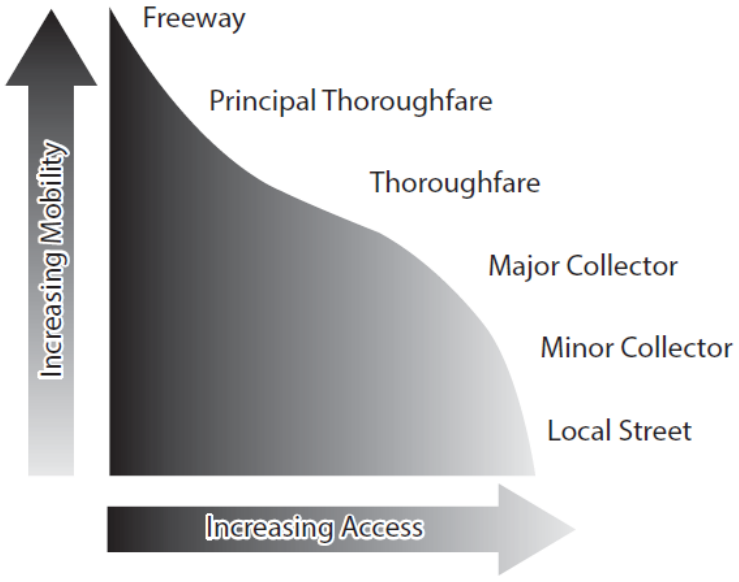
b) **Minor Collector:**

Minor Collectors are public streets that accumulate traffic from local streets for distribution into a Major Thoroughfare or a Major Collector. A Minor Collector typically has residential uses; however, it may also serve commercial or mixed uses.

Minor Collectors typically collect traffic from residential uses or commercial uses and distribute to the Thoroughfare streets. These streets are typically shorter in length, however, may be longer in large single family residential developments. These streets typically serve pedestrian and bicycle routes. Goods movement is limited to local deliveries only. In developed areas, these streets may serve as a main street in mixed use areas.

5. Local Streets:

Local Streets – Provide access to individual single-family residential lots, provide entry and exit to the neighborhood and provide connectivity to collectors and thoroughfares. In short, all other streets not previously listed are considered local streets that provide access from individual properties to the thoroughfare network.



As provided by the definitions above, the nature of the defined roadways above differs based on their regional functionality. Freeways and Major Thoroughfares represent those roadways that adhere to the movement of large volumes of traffic – regardless of mode – over long distance. Collectors and local streets, on the other hand, form the street network that provides access to residential properties, private developments, and other

neighborhood amenities such as parks, schools, or grocery stores. Based on this understanding, Freeways and Major Thoroughfares are designed for optimized mobility while Collectors and local streets adhere to the greatest potential for increased access, as displayed in the above exhibit.

The MTFP is a melding of four distinct street and highway systems, each of which is implemented by various groups or governmental agencies.

B. Radial Streets and Highways

Radial streets are roadways that extend outward from the central portions of the city in a radial pattern resembling spokes on a wheel. Examples include IH 10, IH 45, IH 59, etc. Most of the radial streets and highways represent existing roadways developed some time ago and are usually located in close proximity to mainline railroad rights-of-way, such as Hempstead Highway, Beaumont Highway, Galveston Road, etc. Some radial streets are designated as Major or Principal Thoroughfares, while others are incorporated into the area highway and freeway systems under the jurisdiction of the TxDOT. Radial streets and highways are continuous for long distances and not only supplement the Major Thoroughfares within the grid, but also carry a high percentage of the commercial long-distance traffic generated in this area.

C. Circumferential Highways

Circumferential highways are traffic arteries designed to circle the city at various intervals moving outward from the city's center. In the Houston metropolitan area, there are four circumferential highways designed as an integral part of the MTFP. The first is the innermost loop immediately encircling the central business district and incorporating portions of IH 45, IH 10, and US 59. The second circumferential highway is the "Loop", designated as IH 610, which circles the city about 5 miles from the central business district. The third is the "Beltway" and is designated as Beltway 8, which circles the city about 12 miles from the central business district. The fourth circumferential highway is the Grand Parkway, designated as SH 99, which will circle the city about 25-30 miles from the central business district.

These circumferential highways are under the jurisdiction of TxDOT (portions of Beltway 8 are operated as the Sam Houston Tollway by the Harris County Toll Road Authority) and are being developed to full freeway standards. These roadways provide for long-haul by-pass routes and carry high volumes of traffic as freeway connectors.

IV. Street Hierarchy Classification Table

The Street Hierarchy Classification System was developed in response to neighborhood groups wanting more information and better definition for streets designated as Major Thoroughfares on the City of Houston's MTFP. To address this need, the City Council implemented a proposal of assigning a hierarchy classification to street segments according to their function, the development characteristics of the area, and other factors that vary from urban to suburban settings. The hierarchy system uses graduated increases in number of lanes, traffic speeds, and street right-of-way widths as some methods to accommodate varying levels of traffic demands. On April 17, 1996, City Council adopted the Street Hierarchy Classification System and Hierarchy Table to supplement the MTFP. There are instances where the information shown on the Hierarchy Table and the MTFP Map are

different. The Plan's ultimate right-of-way information that is found in the Hierarchy Table is controlling over the line segments status shown on the map. Sometimes staff research will be necessary to make a final determination, especially at street intersections. When designing a roadway segment, it is strongly recommended to contact PWE for technical design requirements of the roadway.

Major Collectors, adopted by City Council as a street category on April 29, 1998, represented the intermediate classification that provide the connection between local streets and Major Thoroughfares. Major Collectors allow for more flexibility in roadway design and address more issues within neighborhoods. All other streets not previously listed are considered local streets that function to provide access from individual properties to the thoroughfare network.

In 2009, Transit Corridor Street designation was added to reclassify roadways with METRO's existing and proposed Light Rail Transit facilities. This classification allows for the creation of regulations that encourage pedestrian friendly and transit supportive development along these corridors and the around the transit stations.

In 2013, the Planning Commission adopted the Minor Collector definition to fill the street classification gap between local street and Major Collector Street. Minor Collectors were added to the plan in 2013 as a result of the City's Mobility Planning efforts.

Each hierarchy classification consists of a three-part-code that designates a street: 1) function, 2) anticipated number of vehicular through lanes required to meet projected traffic volumes, and 3) the required right-of-way width for the street. An example of the classification system is provided as follows:

P-4-100

P	Street Classification: (P)rincipal Thoroughfare, (T)horoughfare, TCS (Transit Corridor Street), (MJ) Major Collector, or (MN) Minor Collector.
4	Number of vehicular through lanes[1] to meet projected traffic volumes
100	Required right-of-way width (feet)

[1] Vehicular through lanes, for purposes of the MTFP Street Hierarchy Classification Table, are lanes used for continuous travel throughout the entire length of the classified street segment. Lanes used for other purposes, such as turn lanes, parking lanes, bike lanes, etc., do not constitute vehicular through lanes.

Currently, detailed hierarchy classifications are established only for street segments located within the city limits. They are presently on the Hierarchy Table. Major Thoroughfares in Houston's ETJ are required to have a right-of-way of 100 feet. In a few cases, streets in the ETJ have been designated as Major Collectors, with a minimum width of 80 feet. Major Collector and Minor Collector streets shall have a recommended minimum right-of-way width of 80 feet and 60 feet, respectively.

V. City Mobility Planning

City Mobility Planning (CMP) is a joint initiative between P&D and PWE, in partnership with the Houston-Galveston Area Council (H-GAC), the region's Metropolitan Planning Organization (MPO). Development of the City of Houston's CMP is being phased. The first phase provided the framework for evaluating transportation issues in the City and its ETJ.

The second phase, which is ongoing, includes the preparation of a series of sub-regional mobility studies where the City and its ETJ is divided into a number of smaller study areas. Each area will have a study that will estimate its projected growth, identify gaps in the existing transportation system and develop recommendations for addressing mobility challenges.

CMP Phase I:

A number of plans have been developed in Houston that set out values and goals for mobility, and several agencies are responsible for developing transportation projects to meet the transportation needs. To facilitate informed decisions about the mobility options, the City of Houston created the CMP Process, which selects projects with the most potential to improve mobility. Key elements of the CMP Process include: a Travel Demand Model (TDM) that accurately reflects travel demand and available 'supply', a toolkit for identifying proposed solutions, and measures of effectiveness that can be used to evaluate the extent to which selected solutions effectively improve mobility within the City and its ETJ.

Phase I was completed in 2009. The outcomes of Phase I were outlined in technical memorandums that provide the framework for a transportation planning process that aims to improve agency coordination and help establish how the City finds effective transportation solutions. One of the key outcomes was a Multi-modal Street Classification (MMC) that works to integrate the context and other modes with the functional classification system. As an outcome of Phase I, the City adopted alternative street cross-sections in Chapter 10 of the IDM and integrated the TDM analysis into the City's MTFP, CIP and other Traffic Analysis processes. In addition, Phase I also included a recommendation to add a Minor Collector street classification to the MTFP.

CMP Phase II:

Phase II applies the CMP Process, as developed in Phase I, to the mobility study areas within the City of Houston and its ETJ. The primary purpose is to identify near, and long-range projects intended to promote better mobility – for all users of the transportation system, and to develop a MMC for streets within the study area to meet the projected growth for a 25-year horizon. Outcomes of the mobility studies also serve as input into the Rebuild Houston Process.

The community and stakeholders within the provided study areas are engaged in a process of developing mobility solutions. Corridor trends are highlighted within these studies for greater consideration, and examples of design solutions are provided for increased functionality of corridors. The City's MMC is a public street type classification system that takes into account the functional classification (MTFP designation) and context, inclusive of right-of-way width, number of lanes, traffic volume, bicycle, pedestrian, transit, freight, and parking needs. The context adjacent to the road is comprised of population and job densities (present and future), as well as projected land use types (residential, commercial, mixed use, or industrial). The Institute of Transportation Engineers (ITE) also recommends that context should include elements of site design and built form, including building orientation and setback, parking type and orientation, and block length.

VI. Adoption and Revision Procedures

A. Code Requirements

The Planning Commission may approve recommended revisions to the MTFP by a majority vote of the members present. Per Section 33-374 (b) of the Code of Ordinances, each year, on or before the last day of September, the Commission shall consider the annual MTFP prepared by the director and any applications to amend the MTFP.

In addition to the Commission-recommended MTFP amendments, the Director of P&D may make administrative corrections to the Hierarchy Table and MTFP Map to ensure accuracy of the Plan. Types of corrections that may be made administratively are limited to the following:

- Minor modifications to reflect completed development activity or to correct errors on the MTFP Map or Hierarchy Table. These modifications are generally identified during subdivision plat review, permitting, mobility studies, or similar activities, and may include alignment adjustments, name changes, or segment limit changes.
- Corrections to right-of-way status (sufficient width, to be widened, or to be acquired) on the MTFP map to reflect right-of-way-related actions previously taken such as right-of-way acquisitions and dedications.
- Corrections to the right-of-way width on the Hierarchy Table to reflect existing conditions when such corrections will not affect adjacent property owners.

B. Publication and Distribution of the Plan

Historically, it has been the policy of the Planning Commission to authorize the publication of this plan and make it available to the general public through P&D. The map is published on the P&D webpage as a PDF document and also through various Geographical Information System (GIS) web-applications developed by the City.

C. Requests for Plan Revisions

Revisions in the MTFP usually stem from four distinct sources: requests from individual land owners to change the alignment of a specific thoroughfare that may affect their proposed development; adjoining community or neighborhoods; requests from other government agencies; and City staff.

Staff recommendations usually involve the correction or resolution of problems caused by some existing development, geographic or topological feature, or other technical matter that was not apparent or considered at the time the original plan was approved. Prior to making its recommendations to the Planning Commission, the P&D staff solicits comments regarding the plan from various governmental agencies and interested organizations. During the staff review process the applicant may request to withdraw the application. In some instances, the staff may decide to continue its research and review on the application and make a recommendation to the Commission for action.

The general policy of the Commission and the staff is to make all reasonable efforts to maintain the original integrity of the plan and its basic theory, and to keep changes and revisions to a minimum. This policy is necessary to maintain the plan's continuity and to ensure confidence in the plan's long-range implementation by private landowners,

developers, and subdividers as well as other governmental agencies charged with the responsibility of constructing facilities that are illustrated on the plan.

D. Alternatives

When necessary, staff may identify alternatives to those proposed by the applicant. Staff will present these alternatives, and those proposed by the applicant, to the Planning Commission at the Planning Commission Workshop. The Planning Commission may recommend additional alternatives for staff's consideration during the evaluation process. Staff shall provide a refined list of alternatives for public input at the Public Open House and Public Hearing meeting. The Planning Commission may consider only those alternatives as provided by staff during the Public Hearing meeting.

E. Public Engagement Process

Section 33-377of the Code of Ordinances requires the Planning Commission to hold one public hearing on the proposed changes. The Commission must publish a notice of any public hearing in a local newspaper, not less than 20 days in advance of the hearing on the proposed amendments. Although only one notice is required, the policy of the Commission has been to publish such notices in the Houston Chronicle under the "Legal Notices" section and to run them for three consecutive days. In addition, when known property interests within 50 feet on each side of the corridor are affected by proposed changes in the plan, the P&D staff may also specifically advise these interests by letter of the forthcoming hearing and seek their comments in this regard.

Specific notification of all property owners affected by any proposed change in the MTFP is not required by law, however, P&D makes best efforts to provide individual notification when, in the judgment of the staff, it is appropriate in the public interest.

When project-specific public engagement has occurred, as identified through items 1 and 2 below, notice to individual property owners, as described above, will not be provided:

1. Sub-regional Planning Study Amendments:
These studies typically take 4 to 15 months and include a public engagement component. This includes a minimum of two public meetings, two stakeholder committee meetings and a public comments period (typically 30 days) prior to the final report being published. Notification to the public is sent to residents registered on CitizensNet, Civic Clubs, and Super Neighborhood groups within the study area. The stakeholders committee included Super Neighborhood groups; Special District (i.e., Management Districts), TIRZ's, etc.; public agencies (i.e., METRO, TXDOT, etc.); and other key representatives within the study area. After the final public meeting, the draft final report is provided to the public and stakeholders for comments. Once the public comments period is closed, the report is finalized.

2. County Amendments:
In Houston's ETJ, Harris County utilizes the City's MTFP. Other counties like Fort Bend, Waller, and others, adopt Major Thoroughfare Plans to ensure continuity of the thoroughfare system in the unincorporated areas. These counties do not have to amend their thoroughfare Plan annually; however, if changes are needed, they are required to go through the County Commissioners Court. Public meetings are then

held to allow for public comments on the proposed amendments. Ongoing coordination between the County and City is important to ensure that the respective thoroughfare maps are updated as changes are made.

F. MTFP Amendment Review Process

The flow chart below illustrates the MTFP amendment review process as adopted by Planning Commission:

VII. Interpretation of the Plan

A. Incorporation of the Houston Complete Streets and Transportation Plan (HCSTP)

Executive Order (EO) 1-15, directs the City to implement the complete streets policy through the planning and implementation of all transportation improvements. Components of the HCSTP include the MTFP, Bikeway/Pedestrian Plan, Rail Plan, Multi-modal Classification Street Type and Master Parking Plan, Bayou Greenway Initiative, Context Report and METRO's Transit Plan.

Multi-modal Classification (MMC)
MMC is a public street type classification system that takes into account all modes of transportation and context of the street. The incorporation of context and the guiding

principles of the FHWA's Context Sensitive Solutions (CSS) within the HCSTP allow the City to "reach [its] transportation goals by encouraging the consideration of land use, transportation, and infrastructure needs in an integrated manner. When transportation planning reflects community input and takes into consideration the impacts on both natural and human environments, it also promotes partnerships that lead to 'balanced' decision-making."

Modes of operation include pedestrian, bicycle, transit, rail, freight, and vehicle travel. Multi-modal considerations are refined during system level transportation planning or with the mobility planning studies. To support multi-modal operations, all references to traffic in the MTFP represent travel by all modes.

The Planning Commission shall ensure that the proposed changes to the MTFP are consistent with the recommendations of the HCSTP.

B. Challenges

The following situations are challenges and limitations related to the interpretation of the MTFP and application of the plan to specific individual tracts of land:

1. The area of the Commission's jurisdiction is huge (approximately 2,000 square miles), causing the scale of the plan to be quite small (1" = 2 miles). This small scale, coupled with the fact that some base mapping within the jurisdictional area is not precise, creates a situation where application of the plan to specific individual properties is dependent on the interpretation and judgment of the staff and the Commission. In actuality, if one were to measure the dots indicating the proposed thoroughfares, they would be four to five hundred feet in width. Instead, the lines on the map should be viewed as "corridors" to be further defined as development occurs. As a result of this situation, the Commission's plan carries the following notation:

   > *"This plan shows general locations only which are subject to modifications to fit local conditions."*

   This note also recognizes the fact that no plan, however well prepared, can be developed and implemented which does not require continued modification and refinement to reflect the on-going development processes of the city and the territory within its jurisdiction.

2. The use of this plan as a real estate investment tool has caused some difficulties in making modifications to the plan and has created conflicts between property owners that may or may not want their property affected by a proposed major thoroughfare. It has been well-recognized that the final and precise location of a major thoroughfare on a specific tract of land can enhance adjacent property value and increase the speculative potential for all types of development, particularly high-value commercial and business developments. As a result of this situation, some land owners, investors, and others in the real estate business actively seek to have proposed Major Thoroughfares located within their properties or seek changes in the Commission's plan in order to secure a major thoroughfare location within their property.

This situation causes some property owners to dedicate major thoroughfare right-of-way through their property by separate instrument, without any intention of constructing the road, rather than incorporating such dedication within a subdivision plat approved by the Commission. The P&D staff discourages this practice, and it must be noted that this type of dedication, while a significant action, does not bind the City or County, or the Planning Commission. The Commission certainly must consider this fact in any future proposals to develop the adjacent property or to revise the plan in a manner that would affect the previous dedication, but the Commission should not bias its decisions related to the maintenance of a viable plan on the basis of separate-instrument dedication of rights-of-way where no pavement has been installed.

C. General Policies

The following statements reflect the general policies historically followed by the Planning Commission in their administration and maintenance of the MTFP.

1. Attitude and position of the Commission:

The basic and underlying attitude of the Commission in the administration, application, and interpretation of the MTFP is to be fair and impartial to all parties concerned, and to provide an open forum for the free discussion of all aspects of any proposal regarding the application or interpretation of the plan, to render only those decisions that will be in the best interests of the general public, and to maintain the theories and concepts which are the basis of this plan.

2. Location criteria:

a) In general, the preferred location for a major thoroughfare and collector is through a tract of land allowing for development to occur on both sides of the thoroughfare rather than along a property line. This policy allows the developer to have continuous control over the development on both sides of the thoroughfare so that the development of the thoroughfare will be an integral part of the design and layout of the overall street system within the tract and to effect economies in the engineering, design and construction costs involved. Obviously, there are instances where the location of the proposed thoroughfare must fall upon a common property line and in this case, it is most desirable that the adjacent landowners agree to participate in the construction of the thoroughfare at the same time.

b) In those instances where the designated Major Thoroughfare, Transit Corridor or Collector street falls upon an existing road or street having insufficient right-of-way, it is the usual policy to require the adjacent property owners, if they have submitted a plat to the Commission for approval, to dedicate their proportional share of the widening of the right-of-way to bring the right-of-way width to the standard. In some cases, because of existing development or other physical factors, all of the necessary widening may be required to be taken from one side of the street only.

c) The location and alignment of proposed Major Thoroughfares should always be based on the relationship of the pattern of land parcels, and the challenges

associated with the crossing of pipelines, bayous, radial streets and highways, and railroads, in order to prevent the creation of awkward land parcels, such as long narrow pie-shaped parcels or parcels too shallow for reasonable development.

d) The Geometric Standards for Major Thoroughfares and Collector Streets are referenced in Chapter 42, of the Code of Ordinances and the IDM.

e) Minor changes in alignment are considered to be those apparent differences in the actual alignment illustrated on the MTFP when the precise alignments drawn at a large scale as part of a subdivision plat submitted to the Commission for approval. It is the general policy of the Commission to consider changes in alignment internal to a given land parcel to be minor and approval can be granted without resorting to the public hearing process. Obviously, such proposed changes must be viewed upon their individual merits, and the staff and Commission must exercise their judgment in this regard. If, however, there is any doubt about the appropriateness of any such proposed change or its effect upon the plan or any other property owner, the Commission has taken the position that a public hearing should be required prior to any action to approve the proposed location of the thoroughfare within a specific tract of land.

f) Major changes in alignment are considered to be those significant differences in the actual alignment illustrated on the MTFP when the precise alignment is drawn at a large scale and affects the general pattern of thoroughfares established in the area that affects land owners beyond the specific tract when submitted to the Commission for approval or any change which would involve the removal of the previous major thoroughfare designation from an existing road, or the incorporation of an existing road in the planned alignment of a major thoroughfare are also considered major changes. Proposals that are determined to be major changes in the plan can only be approved through the required public hearing process. No changes in the plan should frustrate the general pattern of thoroughfares previously established, violate the plan's historic integrity, or affect the theories and concepts that are the basis of the plan's design. The burden of proving the compelling reasons and public benefit of any proposed change in the plan rests with the parties requesting such a change.

VIII. Traffic Analysis

Planning-level traffic analysis is completed as part of the MTFP update annually. To ensure integrity and subjectivity, the analysis is completed by P&D staff, in coordination with PWE, for each amendment request. Three primary criteria included in the analysis are: traffic volume, level of service, and network connectivity & accessibility.

A. Traffic Volumes and Level of Service

The ability of a roadway to handle traffic is a function of its geometric design. Delayed traffic flow indicates the need for improvements which may affect certain design considerations such as the number of lanes, posted speed limit, horizontal/vertical

alignment, lane width, driveway density, signal spacing, and allocated cycle time at signalized intersections.

Level of Service (LOS), or the number of vehicle trips accommodated by corridor per day, is an industry standard used to determine whether traffic flow is operating at an acceptable level with little to no delay in traffic movement. LOS ratings use an alphabetic scale with “A” as most free-flowing and “F” as having severe congestion.

Volume Thresholds

Volume thresholds are indicative of LOS as defined per day. Current traffic volumes for streets within the city limits were obtained from the City of Houston, PWE, Traffic Management Branch and TxDOT.

Based on national research and observations in the Houston area, the following volume thresholds have been established to determine capacity needs for planning purposes.

ADT, veh/day	2-Lane Road	4-Lane Road	6-Lane Road
Maximum Throughput to maintain reasonable LOS	14,000-16,000	30,000-33,000	40,000-45,000

The provided volume thresholds are used as a guideline to ensure adequate number of lanes is planned for a corridor. For example, if the projected Average Daily Traffic (ADT) for a new roadway connection is 18,000 vehicles per day, the table above indicates that a 4-lane cross section will be required.

Projected Volume

Roadway volume projections are obtained using a regional traffic model developed by the Houston-Galveston Area Council (HGAC). This model uses data from validated base year counts and current traffic counts to make volume projections. Project traffic volumes are analyzed in accordance with existing volume thresholds given the definition of traffic flow is the same.

Vehicle Miles Traveled (VMT) is the total number of miles driven by all vehicles within a given time period and geographic area (e.g., study area). It is a common statistic used by the Federal Highway Administration (FHWA) and most planning agencies and is one of the output parameters from the TDM. In the context of the MTFP update, the VMT resulting from a proposed network change is compared with the base VMT to determine the impact on the transportation system.

ADT change is another metric that the City uses to assess the traffic impact of a proposed network modification. It is evaluated as a simple increase or decrease in ADT for each key roadway in the study area after the proposed modification is in place. The overall VMT may remain the same between the base scenario and the proposed amendment, but a traffic shift from one roadway to another within the study area can be significant enough to create potential mobility and safety issues. Examination of the ADT differences is a technique to assess traffic impact of the proposed modification on the surrounding network and mobility benefit of the proposed modification.

B. Network Connectivity & Accessibility

Network connectivity is another important measure that P&D staff examines to ensure an effective roadway network in the region. Connectivity elements that are evaluated include:

- Consistent street classification along a corridor
- Gap(s) created by man-made or natural barriers and gaps that can be eliminated
- Movement restrictions that adversely impact mobility
- Availability of alternative north-south and east-west routes

Accessibility level can significantly affect mobility along a corridor and economic viability of surrounding tracts. A qualitative assessment of accessibility is conducted by P&D staff to ensure:

- Access level along a corridor is commensurate with its classification
- Safe access is available to properties adjacent to the corridor
- Feasible shared access points are encouraged and promoted

IX. Summary

The Planning Commission has the authority and has assumed the responsibility of creating and maintaining a MTFP applicable within the City of Houston's jurisdiction for the guidance of the development of the street and highway network for this area which will provide a high level of mobility and accessibility for a majority of the citizens, present and future, of this area.