The University of Houston

Proposed Transportation Management Plan

See Exhibit D

Summary: The Plan and Purpose

The UH "Framework Plan" provides for campus re-development to accommodate the University's planned growth, further integrate the Houston campus into the City of Houston and enhance the quality of the campus as part of its overall strategy to achieve premier status as a major Tier One Research University. We propose a multi-agency (UH, TXDOT, City of Houston, and METRO) approach to new transportation related strategies, projects and programs to be accomplished collaboratively over the next 10-15 years.

Background: Current Conditions and Acceptable Levels of Mobility

The UH campus area vicinity currently experiences approximately 125,000 vehicular trips per weekday with generally acceptable levels of mobility. Important transportation related aspects of current conditions include:

Vehicular Traffic Volume and Pattern Estimates 2008

2008 Estimated Vehicular Trips per Weekday

Total Volume:	**125,000**	**100%**
Destination		
UH Campus Related	78,000	60%
Neighborhood Related	57,000	40%
Access Direction		
From North via Scott and Cullen	81,250	65%
From East via Spur 5	31,250	25%
From other Local Streets	12,500	10%

Note: Volumes are estimated from counts made at 11 key locations in the UH area from 1998 to 2008 and projected to 2008.

- Commuter Students :Many UH students commute to campus via private automobile with less than 10% housed in residential units on campus and only very limited use of METRO bus service.
- Parking
  UH Campus Parking Spaces: 17,100
  - Surface lots: 15,600
  - Parking Structures: 1,500

Campus Shuttle : UH Operates extensive shuttle bus service on campus
- Numerous Entrances : UH Campus has 19 entrances and 2 Visitor Arrival Information Booths

- Way finding: Campus orientation, way finding and pedestrian safety are areas of concern.

Planned Changes: The Impact on Mobility

Over the next 10-15 years major changes are planned for UH campus and surrounding neighborhood with significant implications for transportation and mobility.

- UH Enrollment Growth

UH student enrollment is planned to expand from the current 35,000 to 41,000 in 10 years and to 45,000 in 20, years. Staffing levels, of 4,000+/- will also increase to over 5,000 in this period.

- UH Residential Development

UH student housing, 4,224 beds, accommodates about 12% of students on campus and plans to develop an additional 6,000+ beds to accommodate approximately 25% of student body on campus and in the surrounding neighborhood. This will diminish the trip per student ratio which will have a positive impact on area mobility.

- UH Campus Redevelopment per "Framework Plan"

The UH campus will be redeveloped with construction of new academic and support facilities (2.3M sf bringing total to 8.9M sf), new pedestrian corridors, green space, services, aesthetic amenities, utility infrastructure and roadway development. Importantly, Cullen Boulevard is planned for conversion to a pedestrian mall in the section between Holman Street and Cougar Place Drive, which will create a more cohesive campus and greatly improve pedestrian safety. However, mobility impact is significant as Cullen Blvd. will no longer function as a connecting through street major thoroughfare for normal vehicular traffic, only special use and emergency vehicles.

- UH Parking Facilities

UH will develop 2,600 new parking spaces which will bring the total to 19,700 spaces. Importantly, multiple new parking garages will also be constructed in strategic locations such that 50% of parking will be accommodated in structured garages. The areas of former surface lots will be re-developed with new campus facilities.

- METRO Light Rail Transit

METRO will develop two light rail lines, the University and Southeast Corridors, that will serve the UH campus and neighborhood on Wheeler, Scott, MLK and Elgin. Five transit stations will be developed, one of which will serve both lines on Scott at Cleburne/Alabama. This transit service represents an extremely valuable, overarching improvement for mobility in the UH campus area. As travelers convert to transit, vehicular traffic will diminish, however, LRT operations will disrupt traffic flow on the transit severed roadways, MLK, Wheeler, Calhoun, Scott and Elgin.

- Conclusion

These major changes will have a powerful impact on mobility and the overall result will be "mixed" with both positive and negative factors. The interaction between these factors and the dynamics of their implementation over time will represent a very complex mobility situation and require careful, well coordinated efforts to manage them effectively and generate a positive outcome.

Resultant Level of Mobility: Complex: with Problems and Opportunities

- Increased Trip Generation

2018-2023 Estimated Vehicular Trips per Weekday

Total Volume:	**160,000**	**100%**

Traffic trip generation is projected to increase from 125,000 trips per weekday to 150,000-160,000 trips which will overload the capacity of existing roadways, current traffic access flows and non-use of transit.

- Increased Congestion

Vehicular mobility is projected to diminish to unacceptable levels, with Levels of Service dropping below acceptable levels (A, B or C) to D or E at major intersections in peak hours. Scott Street corridor, I-45 to Wheeler will suffer the most severe congestion due to LRT operations, high traffic volumes, closure of Cullen Blvd. and many driveway cuts. The Wheeler corridor is projected to be next most severe.

- Campus Traffic

Normal staff and student traffic on the UH campus, both vehicular and pedestrian, is expected to become problematic. Specialized traffic such as visitors and special event attendees require tailored approaches to maintain acceptable levels of mobility and orientation.

- Neighborhood Traffic

Surrounding neighborhood traffic and pedestrian safety will also become problematic.

- Transit

Transit service represents an exponential opportunity to enhance the quality and capacity of mobility in the UH campus vicinity

Proposed Remedial Actions (see attached Exhibit D):

1. Re-direct Freeway Vehicular Traffic to Spur 5 for Easterly Access

Balance campus bound I-45 freeway traffic 50/50 between northerly access on Cullen and Scott and easterly access via Spur 5 which will require redirecting about 15% of the traffic (24,000 of 160,000 trips/weekday) which is currently split 65% North and 35% East.

- Re-program TXDOT Freeway Directional Signage
- Develop UH campus parking garages on East
- Re-program UH campus directional signage

2. Maximize LRT Transit Use

Set specific goals for transit use, thereby converting vehicular trips to transit use and reducing roadway congestion. An initial goal of 10% would represent 16,000 trips per weekday and greatly improve overall mobility, passenger safety and convenience, air quality and energy conservation.

3. Develop UH Campus Circumferential Loop Roadway

A special purpose loop roadway providing circulation for campus traffic would improve campus mobility and relieve congestion on surrounding thoroughfares. Additionally, "multi-modal transportation centers" could be established on this loop road, as noted below, would represent a major mobility enhancement as well as improvement in traveler service levels and convenience.

4. Multi-modal Transportation Centers

Transit stations represent opportunities to cluster the various modes of transportation in a coordinated center facilitating transfers between modes, improve mobility performance, improve way finding and offer traveler amenities. If the centers are located on the circumferential loop roadway the combination represents a highly effective transportation system. Modes of transportation coordinated in such centers include:

- LRT Transit
- Vehicular Roadways
- Vehicular Parking Garages
- Pedestrian Corridors
- Campus Shuttle Buses
- METRO Busses
- Bicycle Accommodations
- Arrival Information Booths

5. UH Campus Improvements
    - Enhanced shuttle bus service
    - Expanded way finding and directional signage
    - Enhanced and strategically located visitor information booths
6. Intersection Improvements
    - Add a westbound right turn bay at Wheeler at Scott
    - Add a southbound left turn lane at Wheeler at Scott
    - Improve parking lot access off Cougar Place at Cullen.
    - Add a second southbound left turn bay at Holman at Scott
    - Add a northbound right turn bay at Holman at Scott
    - Remove on-street parking on Holman to increase traffic carrying capacity with Cullen closed between Holman and Cougar Place.
    - Extend westbound left turn bays at Scott at Elgin
    - Add second southbound and northbound left turn bays at Scott at Elgin
7. Strategic Roadway Improvements
    - Extend Spur 5 to IH 610
    - Construct Wheeler as a four-lane boulevard per the Major Thoroughfare and Freeway Plan

Transportation Management Plan: Successful

The UH Campus Improvements and Roadway Improvements identified above have been analyzed with forecast traffic volumes. Acceptable levels of mobility are forecast for the critical intersections with the forecast growth and the remedial actions taken.

The benefits of the mitigation strategy include the following:

- Better campus circulation
- Better pedestrian safety
- Trip reduction due to increased on-campus housing
- Higher transit ridership
- Better arrival experience for visitors
- Easier mode-to-mode transfers
- Improved air quality
- Lower fuel consumption
- Smaller carbon footprint
- Enhanced overall mobility experience
- Easier parking

The remedial actions also improve event-day traffic operations, including UH and TSU football games, Houston Dynamo soccer games, and smaller events at UH venues. There is also capacity to absorb growth beyond the design years analyzed. The strategic improvements for Wheeler and Spur 5 were not analyzed but will provide reserve capacity even further into the future.

Implementation Program and Schedule

The Transportation Management Plan is to be implemented on a coordinated basis between the four agencies, METRO, City of Houston, TXDOT and UH, over a 10-15 year period. The projects are clustered in phases to correspond with growth projections as well as timelines for key projects:

- Phase I-Near Term: 2009-2012 includes those projects related to METRO's opening of SE and perhaps University lines in 2012 and major changes in UH campus such as enrollment growth, facility and garage construction and closure of Cullen as through street.
- Phase II-Intermediate Term: 2012-2020 includes those projects relating to accommodation of additional campus and neighborhood growth, new facilities, circumferential loop roadway, and development of METRO transit stations as multi-modal transportation centers.
- Phase III-Long Term: 2020+ includes those major infrastructure projects to accommodate growth in overall area, such as extension of Spur 5 to Loop 610.

On-going coordination will assure efficiency in project planning and development as well as efficiency in financial planning and cost effectiveness. It is suggested that a steering committee be organized with standing representation by all four agencies with responsibility for communications, coordination and agency decision making. This is especially important in the initial Phase I as METRO plans and constructs the LRT.

Conclusion

The Transportation Management Plan as presented herein, is a proposal offered for consideration by all agencies. Following these considerations, the Plan will be finalized and Steering Committee organized. The University of Houston is grateful to METRO, The City of Houston and TXDOT for their contributions and cooperation in developing the critical transportation infrastructure for UH and Third Ward Neighborhood.