City Mobility Planning

Planning Commission Update

November 20, 2008

THE CUBE MODEL

- **Travel Demand Modeling 101**
  - **Trip generation**
  - **Trip distribution**
  - **Mode choice**
  - **Traffic assignment**

THE CUBE MODEL

- **Model input**
  - **Streets (facility type, lanes, area type)**
    - **Look up tables establish speed and capacity based on inputs above**
  - **Demographics (population employment by TAZ)**
    - **Trip generation determines the number of vehicles produced by each TAZ**

THE CUBE MODEL

- **Model output**
  - **Traffic flows (volumes)**
  - **Post speed (time)**
  - **Trip destinations**
  - **Growth rates**
- **Calculation ability**
  - **GIS output**
  - **VMT, VHT, DELAY, Congestion, V/C, boardings, alightings, transit flows, more….**

MODEL YEARS

- **2007**
  - **Base Year**
  - **Existing Street Network and Demographics**
- **2015**
  - **Includes 2009-2013 CIP**
  - **Includes 2008-2011 H-GAC TIP**
  - **Includes 2012 Short-Range Improvements**
- **2035**
  - **RTP projects**

MODEL OUTPUT MAPS

- **Travel miles**
- **Travel hours**
- **Delays**
- **Levels of service**

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TRAVEL TIME BAND

N

45 Minute Travel Time from CBD

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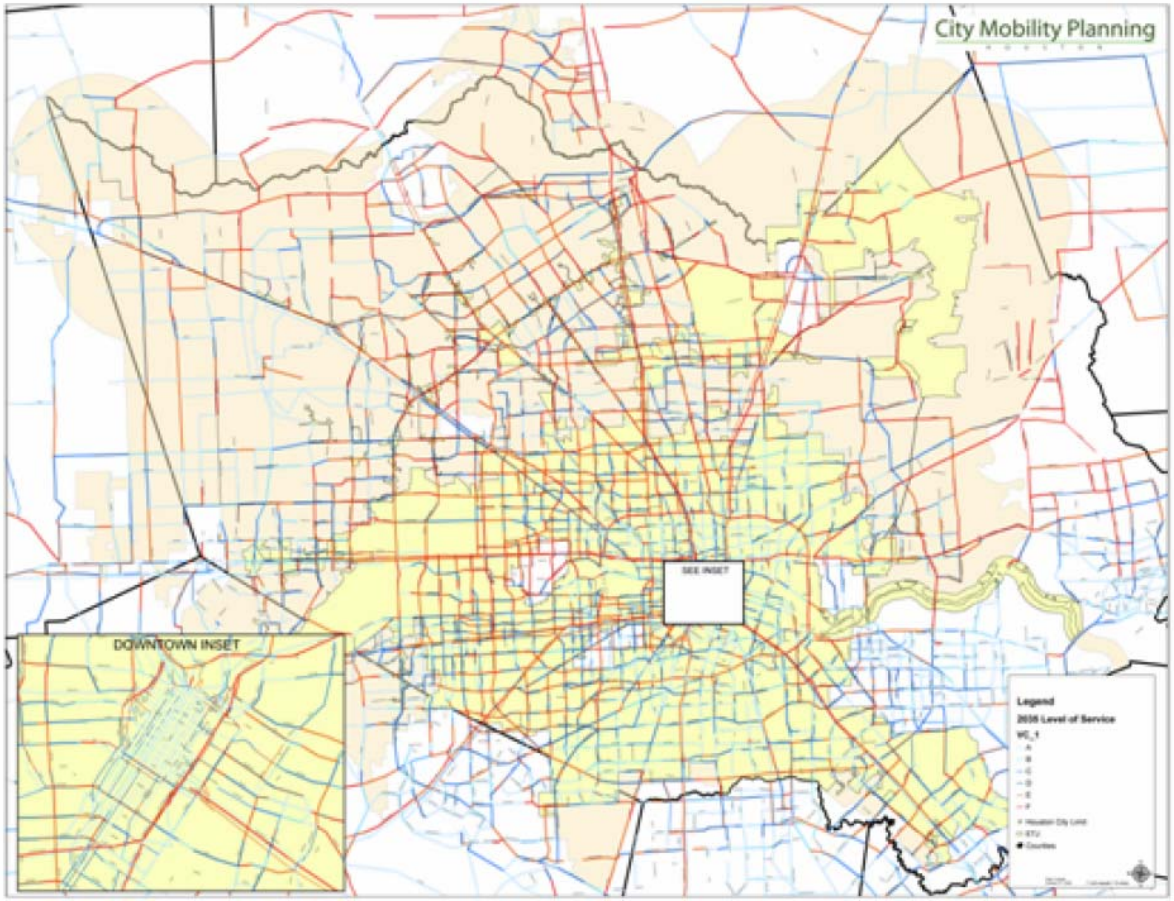
2035 LOS



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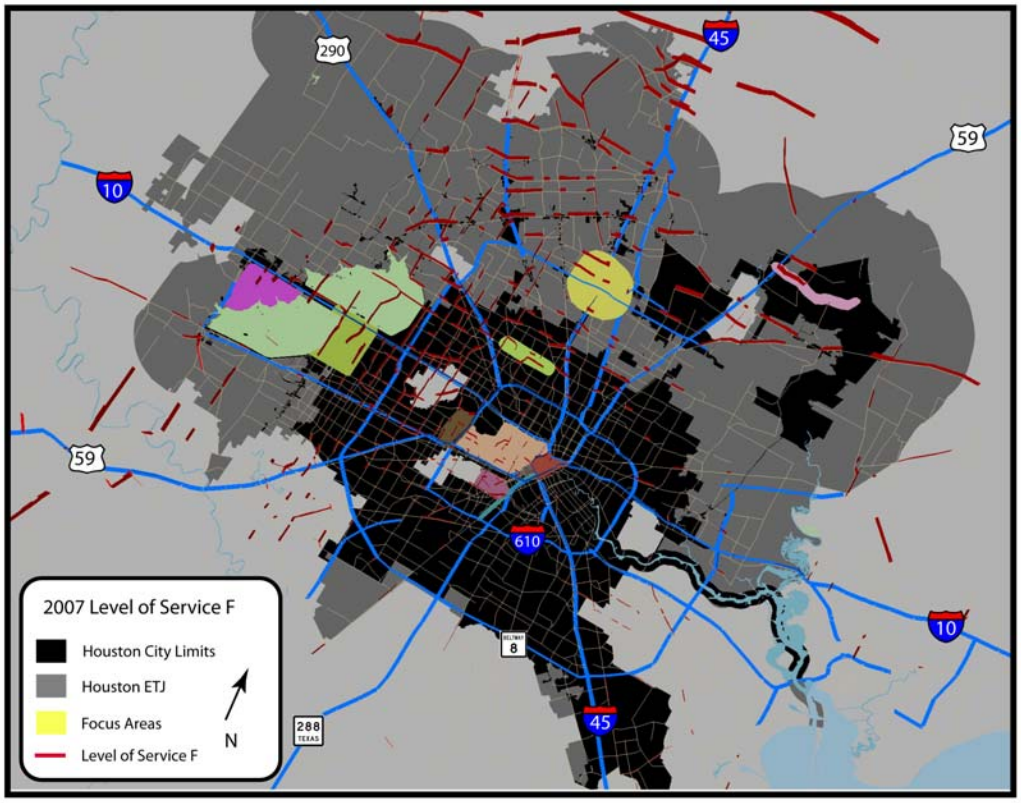
2007 LOS F



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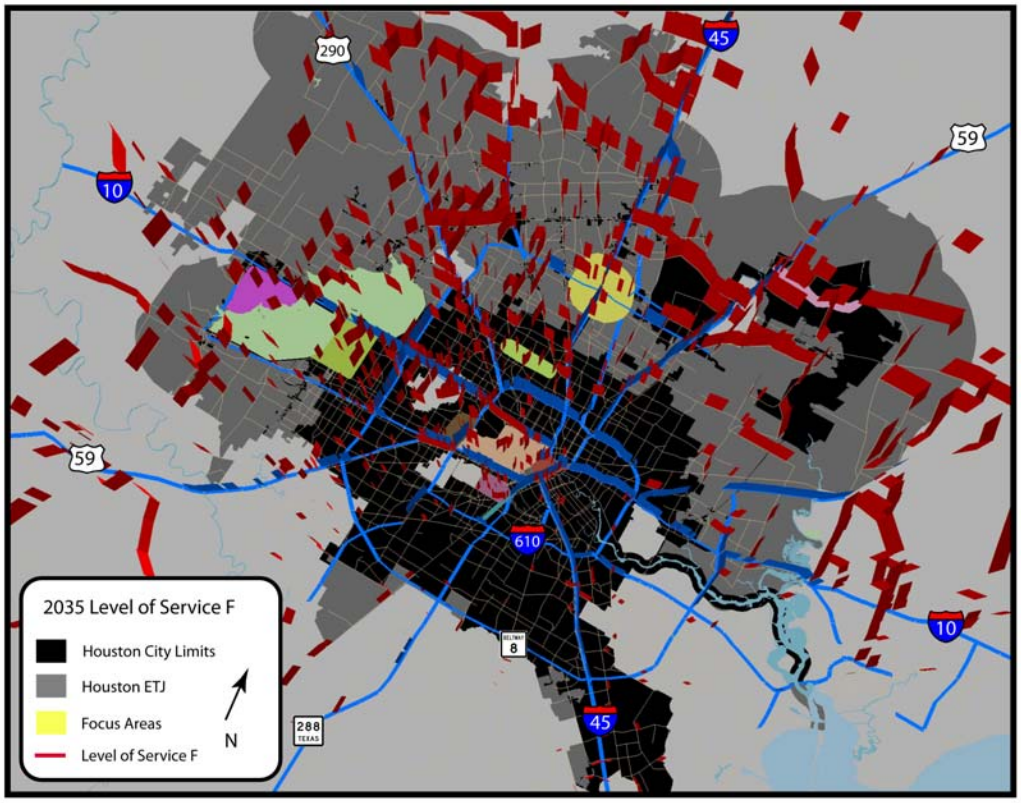
2035 LOS F



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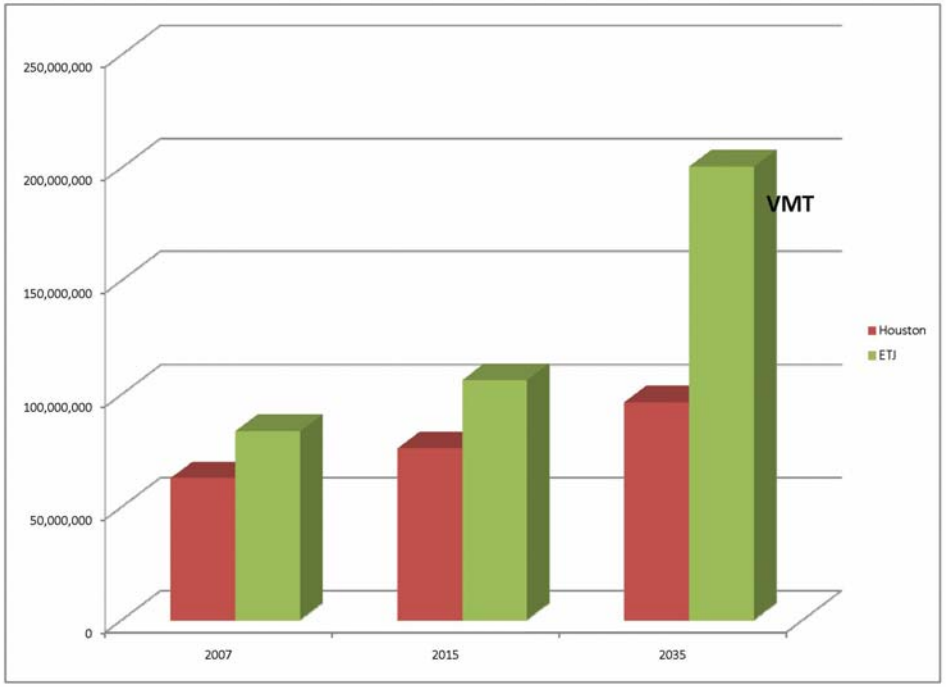
VEHICLE MILES OF TRAVEL



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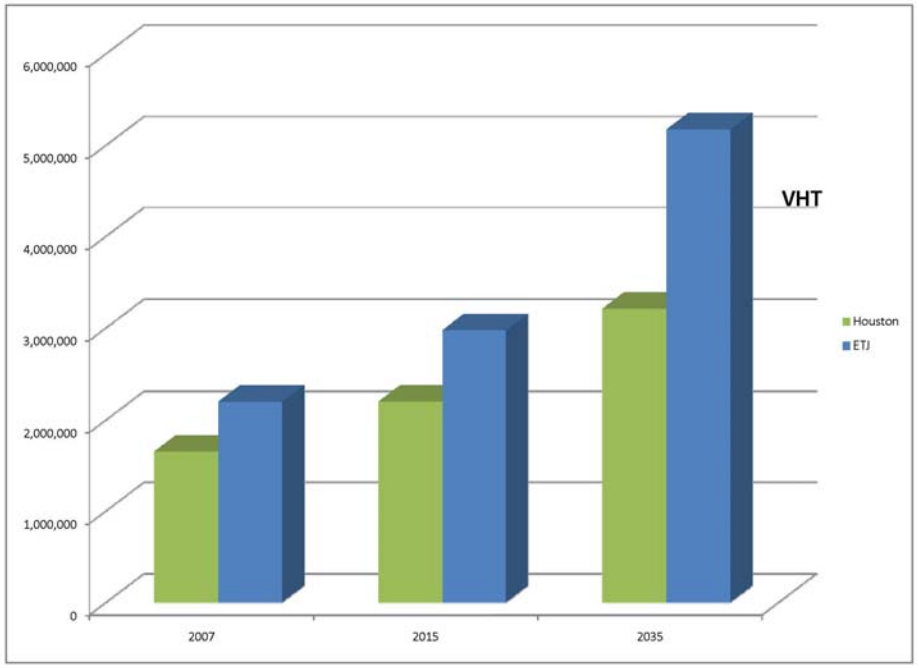
VEHICLES HOURS OF TRAVEL



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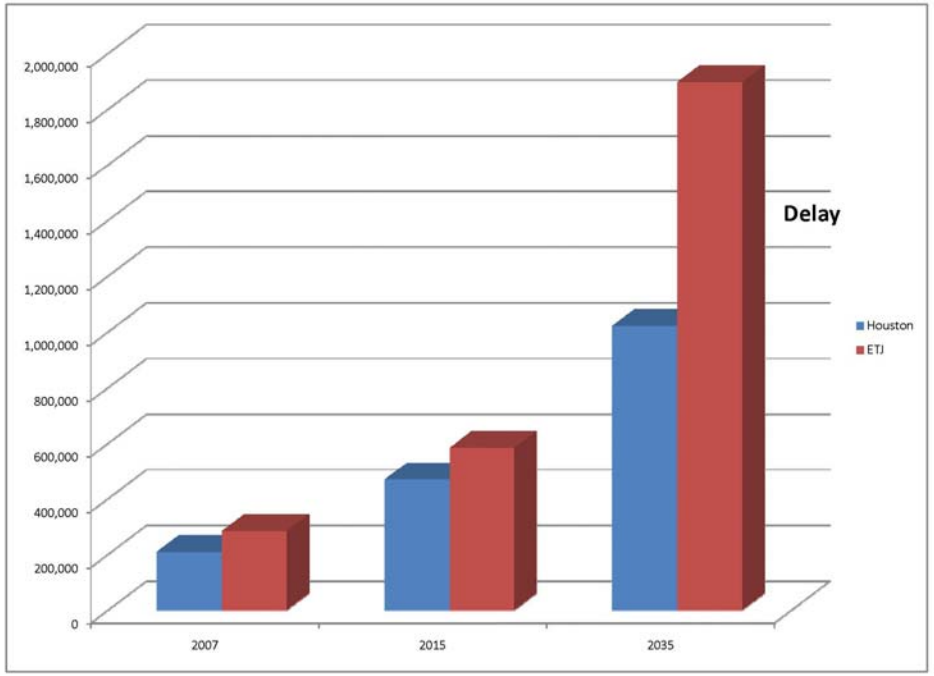
VEHICLE HOURS OF DELAY



THE TOOLBOX DISCUSSION

- **The toolbox represents groups of physical improvements**
- **Individual tools can be tested in the models to determine the most effective solutions**
- **Three suites of toolboxes have been developed for the City of Houston**

THE TOOLBOX DISCUSSION

- **Suite 1 Technical Modeling Tools**
- **Suite 2 Technical Operations Tools**
- **Suite 3 Planning Tools**

SUITE 1 TECHNICAL MODELING TOOLS

- Widening
- New Streets
- Street Diet
- Network Spacing
- Grade separations
- Commuter Rail
- Light Rail
- Bus Rapid Transit
- HOV/Managed Lanes

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SUITE 2 TECHNICAL OPERATIONS TOOLS

- Transit signal priority
- Advanced Parking Signs
- Emergency vehicle preemption
- Advanced signal systems
- Variable speed limits
- Dynamic message signs
- Speed enforcement
- Evacuation and re-entry management
- Raised Medians
- Driveway Consolidation
- Traffic Calming Devices
- Signal Timing
- Intersection Design/Improvement
- Acceleration/Deceleration Lanes
- Cross Access
- On street Parking

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SUITE 3 PLANNING TOOLS

- Signature Bus
- Local, Special Bus
- Park and Ride
- Vanpool Para Transit
- Sidewalks
- Mid-block Crossings
- Bulb-outs
- Pedestrian Islands
- Curb Ramps
- Pedestrian Bridge
- Pedestrian Phase
- Bike Building
- Paved Shoulder
- Bike Lane
- Multi-use Path
- Bike Racks
- TOD
- Mixed-use
- Infill
- Landscaping

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CMP PROCESS

TECHNICAL MODELING PROCESS SITUATIONS

- **Super Neighborhood requests**
- **Thoroughfare Planning issues**
- **Policy maker initiative**
- **TxDOT, METRO, County, HCTRA coordination**

TECHNICAL OPERATIONS PROCESS SITUATIONS

- **Based on the technical modeling or planning process it is determined that the key tools are operational in nature**
- **Major issues in an area or corridor involve intersections, access management, transit operations or ITS**
- **Improvements that involve shorter term (0-5) years timelines should be evaluated in an operations process**

PLANNING PROCESS SITUATIONS

- **Corridor or Areas of significance**
- **New Development or TIA or issue**
- **Public-private agreement**

IDENTIFY OBJECTIVES

- Increased access to transit facilities
- Increased access to pedestrian facilities
- Increased connectivity of the system
- Accommodate the movement of freight
- Maximize cost efficiency
- Minimize travel times
- Reduce increase in congestion
- Minimizing conflict points
- Provide a safe and secure environment for pedestrians and bicyclists
- Minimize Cut Through Traffic in Neighborhoods
- Air quality conformity
- Improve corridor aesthetics
- Expand pedestrian Amenities

MAJOR THEMES TO CONSIDER

- New framework and process to encourage department coordination
- Charter to bring agencies together (City, County, METRO, TxDOT, HGAC)
- Prioritization of CIP using objective measures
- Process in development of projects to consider entire tool box
- Spend money in the most effective ways

Questions

and

Answers