City of Rockville
Regional Development Impacts:
Transportation Capacity Analysis

June, 2013
Purpose and Need

• Response to Council and Public
  – Evaluate use of more advanced traffic analysis methodology and software
  – Examine incorporation of alternative metrics such as travel time and person-trips
  – Incorporate influence of land use changes across political boundaries
Presentation Outline

• State of the Practice
• Alternative Traffic Analysis
• Key Findings
• Policy Revision Recommendations
State of the Practice

Peer Jurisdictions Surveyed included:

- MD - Baltimore, Rockville, Gaithersburg, Montgomery County
- WA - Seattle, Vancouver, King County
- FL - Miami-Dade County, Miami Beach, Orlando
- Boston, MA; Alexandria, VA; and San Jose, CA

Survey focused on:

- Process and Scoping
- Data Collection and Analysis
- Forecasting
- Mitigation
Survey Results

- **Process and Scoping**
  - Increasing use of a third-party consultant to scope, review or perform the traffic impact study, funded by the developer
  - Several jurisdictions have an alternative review process that allows developers to pay a fee per trip and bypass performing a traffic study
  - No jurisdiction had a formal policy for inter-jurisdictional coordination, good professional cooperation was the norm.

- **Data Collection and Analysis**
  - Most jurisdictions collect traffic data on vehicles, pedestrian and bicycles. A few collect transit usage (headway and occupancy) and one jurisdiction surveyed collected travel time
  - Several jurisdictions use Synchro models to 1) validate traffic count data, and 2) to account for oversaturated conditions (actual demand vs. throughput).
  - All but three jurisdictions (Montgomery County, Rockville and Gaithersburg) exclusively use the HCM methodology to determine level of service. However, Montgomery County recently adopted LATR revisions requiring HCM analysis for intersections with a CLV at or above 1600
Survey Results

- Most jurisdictions only require vehicle level of service. The City of Seattle has performed pedestrian level of service analysis, and the City of Boston is considering a complete street multi-modal analysis requirement. Vancouver Washington also uses arterial travel speeds to assess existing operational performance.

  - **Forecasting**
    - The City of Baltimore and Boston use mode share data from the regional travel demand model in accounting for discounts in raw vehicle trip generation rates for pedestrian, bicycle and transit site access.

  - **Mitigation**
    - The requirement of a Transportation Demand Management Plan is increasingly comment (Alexandria, DC DOT). No jurisdiction has a formal monitoring program specifically focused on development impact, however, some require annual reports on a TDM plan which includes monitoring elements.
    - The City of Baltimore and Boston include transportation system management (such as communications and ITS) and operating contributions (e.g. transit) as part of mitigation options. Requesting reduced parking (parking maximums) was a notable tool used by Boston to reduce auto trips when recommended roadway improvements are not feasible.
Interagency Coordination

• Stakeholders included:
  – SHA (Travel Forecasting)
  – County DOT
  – Transit Providers (Ride On, WMATA)
  – Council of Governments (Transportation Planning Board)

• Met four times over the study period
Proposed 2020 Land Use

City of Rockville
Planned Development
Land Use

Mixed Use SF
- 0 - 1,000,000
- >1,000,000 - 2,000,000
- >2,000,000

Office SF
- 0-350,000
- >350,000

Retail SF
- 0 - 45,000
- >45,000

Metro Stations
- Twinbrook, White Flint

Metro Rail
- Red

City of Rockville
- Study Area

<table>
<thead>
<tr>
<th>ID</th>
<th>Name</th>
<th>Total SF</th>
<th>Build Out Year</th>
<th>Status</th>
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<td>1900 Chapman</td>
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<td>Spring Lake Park / Fishers Pl.</td>
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<td>North Bethesda Town Center</td>
<td>2,144,000</td>
<td>2012</td>
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Proposed Year 2020 Land Use

- 12 development sites (half within City)
- 6.5 Million SF
  - 3.5 Million SF office
  - 2.1 Million SF retail
  - 6,700 dwelling units
  - 500 hotel rooms
  - 10,000 new parking spaces
- 9,000 new AM peak hour vehicle trips, and 16,700 new PM vehicle trips
- 3,500 new walking, biking and transit trips
Beta Tests – Alternative Traffic Analysis Considerations

- Documentation of pedestrian, bicycle and transit site trips
- Use of Highway Capacity Manual Methodology
- Use of traffic analysis software (Synchro/ SimTraffic) for travel time, speed and queueing assessment
- Use of person-throughput metrics vs. traditional vehicle throughput
Beta Tests – Findings

- 10 of 18 study intersections projected to exceed City’s intersection capacity standards by year 2020
  - These standards are already relaxed (e.g. 1600 CLV)
  - The land use forecasts do not represent full build out (will occur beyond 2020)
- Peak hour vehicle speeds along MD 355 projected to be reduced by 50%, and travel times projected to triple from existing conditions
- Despite roadway congestion, corridor can handle significantly more person-trips on alternative modes (e.g. rail, bus)
- Limited physical intersection improvements feasible – primarily along Chapman
- New grid streets recommended
  - Fishers to Parklawn
  - East-West between Congressional and Montrose Parkway to connect Jefferson, Rockville Pike and Chapman
Beta Tests – Conclusions

- More robust analysis did not change results – same intersections and impacts were identified
- The current site traffic forecasting methodology may overestimate future vehicle traffic volumes
- The CLV analysis is potentially biased toward developing geometric improvement mitigation options
- The CLV analysis does not sufficiently consider the influence of many operational strategies such as signal timing, phasing, lane grouping, peak hour factors, and queuing
- The evaluation of corridor level performance metrics such as travel times and person-throughput provides a unique perspective on the impacts of congestion on vehicle speeds, and the capacity of transit to more effectively move people through a corridor
Policy Recommendations

• Policies to use of alternative performance metrics/ analysis methodology
  ➢ Incorporating HCM 2010 methodologies and related traffic analysis software
  ➢ Update LATR trip rates and adjustment factors

• Policies to increase overall transportation network efficiency or balance vehicle and non-automobile travel
  ➢ Establish a Parking Management District
  ➢ Establish a Transportation Management Association
  ➢ Establish and monitor an area-wide Transportation Demand Management Program
  ➢ Establish and Trip and Parking bank
Policy Recommendations

1) **Enhanced Interagency Development Review Coordination:** with the County and Gaithersburg that would formalize a practice to share development-related transportation study scopes, reports, and mitigation agreements. An MOU with the County has recently been signed to initiate this protocol
2) **Incorporate HCM 2010 methodology at intersections where the CLV is greater than or equal to 1600.** In order to accurately evaluate a broader range of system management and operations strategies, incorporating HCM 2010 will allow for better documentation of level of service for all travel modes, for intersections approaching capacity.

The traffic analysis software utilized to implement the HCM methodology can also provide additional performance measures such as **queuing, travel time, speeds, and total network delay.**
3) **Improve site traffic forecasting by updating the LATR trip rate database.** The collection of new trip rates for TOD and mixed land uses is necessary to more accurately understand current travel patterns, as well as the influence of development type, transit proximity and service, parking availability and price, etc. on mode choice. A trip rate survey program can be funded through a small additional developer fee extracted to monitor TDM programs, and should be a regional effort.
4) **Establish Parking Management Districts:** The availability of parking has a strong influence on mode choice. Taking a larger look at area-wide parking supply and management through policies such as market pricing, shared parking requirements and parking maximum codes can result in the reduction in costly construction of accessory parking facilities as well as help meet mode share goals.

5) **Establish a formal Transportation Management Association:** A Transportation Management Association (TMA) is a non-profit agency founded by local jurisdictions and key stakeholders such as institutions, chambers of commerce, etc. as a public-private partnership. The TMA’s mission is to support programs that improve transportation to, in and around a designated area including providing enhanced traveler and parking information.
Policy Recommendations

6) **Develop an Area-wide Transportation Demand Management (TDM) Program for TOAs:** As new office, retail, and institutional uses develop in the Transit Oriented Areas, the City has the opportunity to implement demand management programs at a larger scale than a site level that will help shift employee and resident travel from driving alone to carpooling, transit, walking, and cycling. TDM programs are multi-faceted, and typically incorporate policy elements, infrastructure elements and service elements, and are implemented from both the public sector and private sector sides. Example strategies include commuter benefits, priority carpool parking, bike shares, parking cash outs, neighborhood shuttles.
7) **Establish a Formal TDM Plan Monitoring Program:** For developments in a TOA, applicants shall pay a monitoring fee to determine the effectiveness of their TDM measures to ensure that the policy area’s mode split goal is reached and/or approved vehicle site trip rate is not exceeded. The Applicant is subject to a monetary penalty (to be set by the Council) if a mode split goal and/or approved site trip rate is exceeded for each survey (maximum of one survey per year for five years) based on a randomly and third-party performed site trip survey. The survey can occur after 70% site occupancy and should include as applicable vehicle, pedestrian, bicycle, transit and parking trip rates.
8) Create a “cap and trade” trip bank for trip credits and debts

Developers that produce vehicle trips in excess of their vehicle mode split goal and/or approved vehicle site trip rate can buy down trips from a bank of trip credits supplied by developers whose projects produce vehicle trips that are below the threshold for their site. If a development is under the threshold, they can apply for a trip credit and then sell the vehicle trip credits to another developer within the same policy area. This could also be extended to parking spaces.
Questions?