Item #2

PERFORMANCE OF TRANSIT - SIGNIFICANT HIGHWAY NETWORK IN THE WASHINGTON REGION

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COG/TPB Staff

Regional Public Transportation Subcommittee

April 28, 2015

Background

- Comment received at TPB Board Meeting
  - Report performance for transit-significant highway network
- Staff proposed straw man options to identify a transit-significant highway network
- The RPTS agreed to choose the following network:
  - Road segments with at least 6 buses in AM peak hour (one bus in either direction in every 10 minutes)
  - Total length is about 1400 directional miles

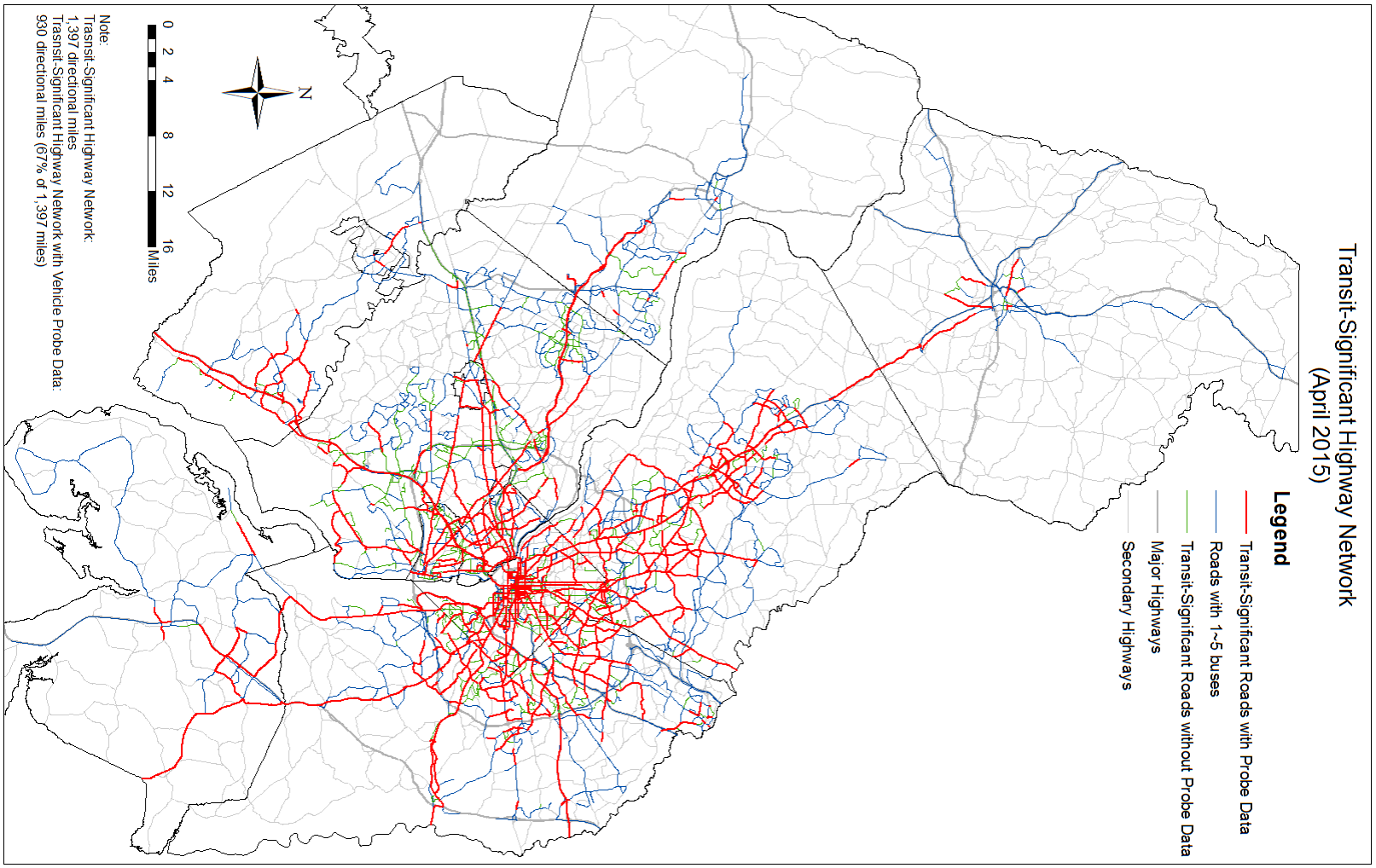
Goal of the Network

- The main goal of defining a transit-significant highway network is to track the differential congestion conditions, if any, between regional overall congestion and transit-significant routes congestion
- Keep decision makers and professionals informed

Vehicle Probe Data Coverage

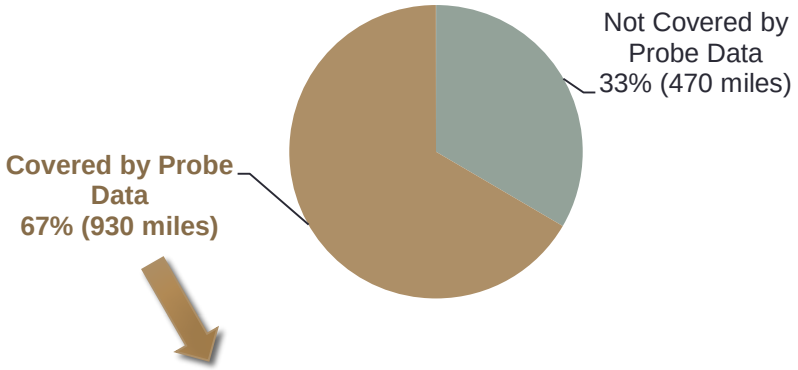
- This transit-significant network was identified based on TPB travel demand model network
- Vehicle probe data are geocoded by Traffic Message Channel (TMC) segments
  - Matches were identified between the TMCs and model network links
  - Not all links or roads are coded with TMC
- About 2/3 of the transit-significant network are coded with TMC (930 out of 1400 directional miles)

Map of Probe Data Coverage

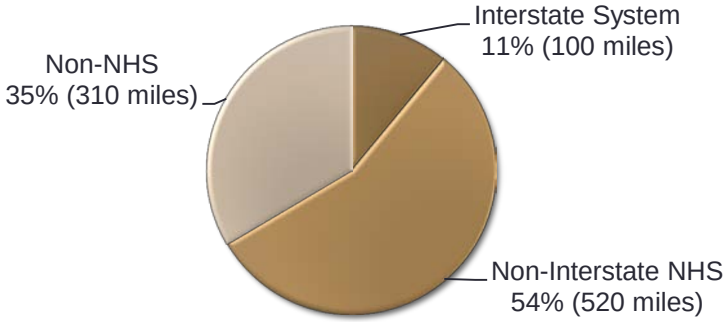


Breakdown of Transit-Significant Network

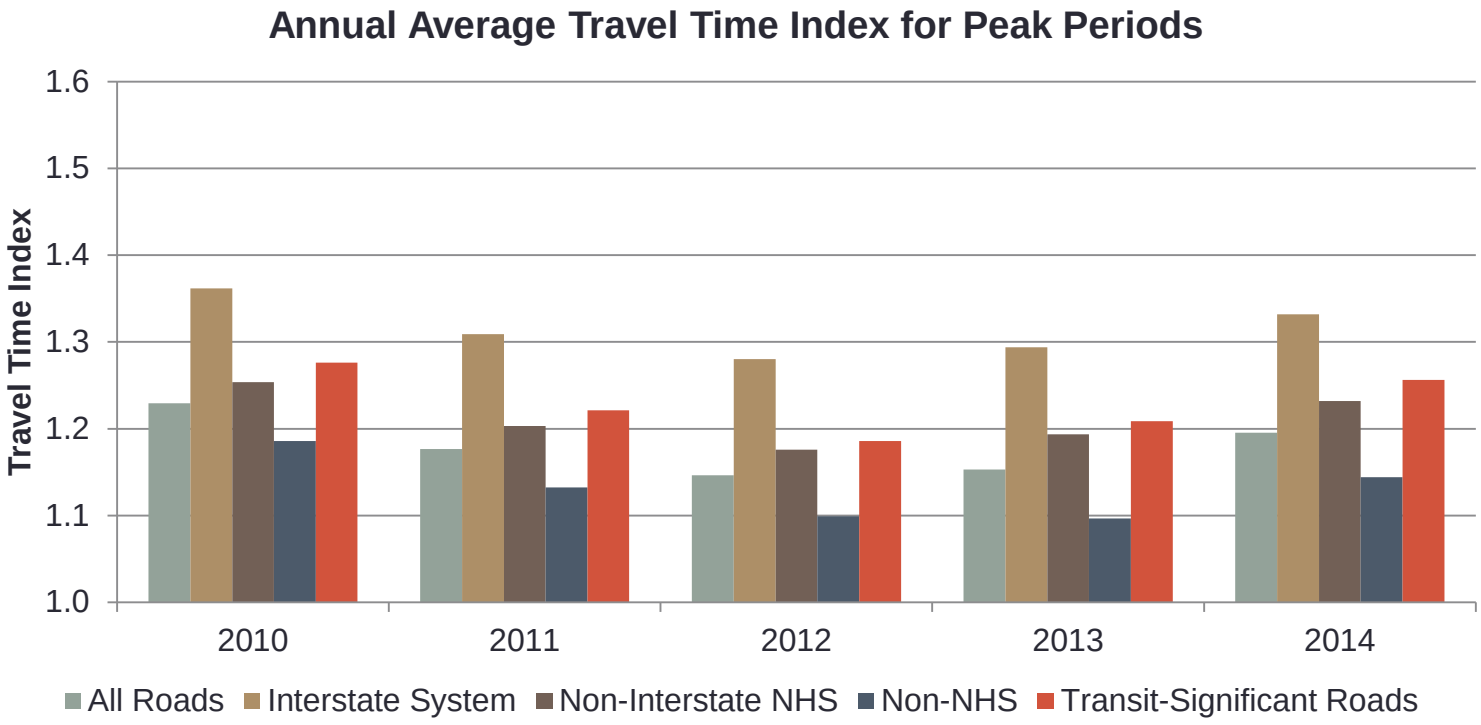
Vehicle Probe Data Coverage of the Transit-Significant Network
(Total length of Transit-Significant Network: 1400 directional miles)



Breakdown of the Transit-Significant Network Covered by Probe Data
(Total 930 directional miles covered by probe data)

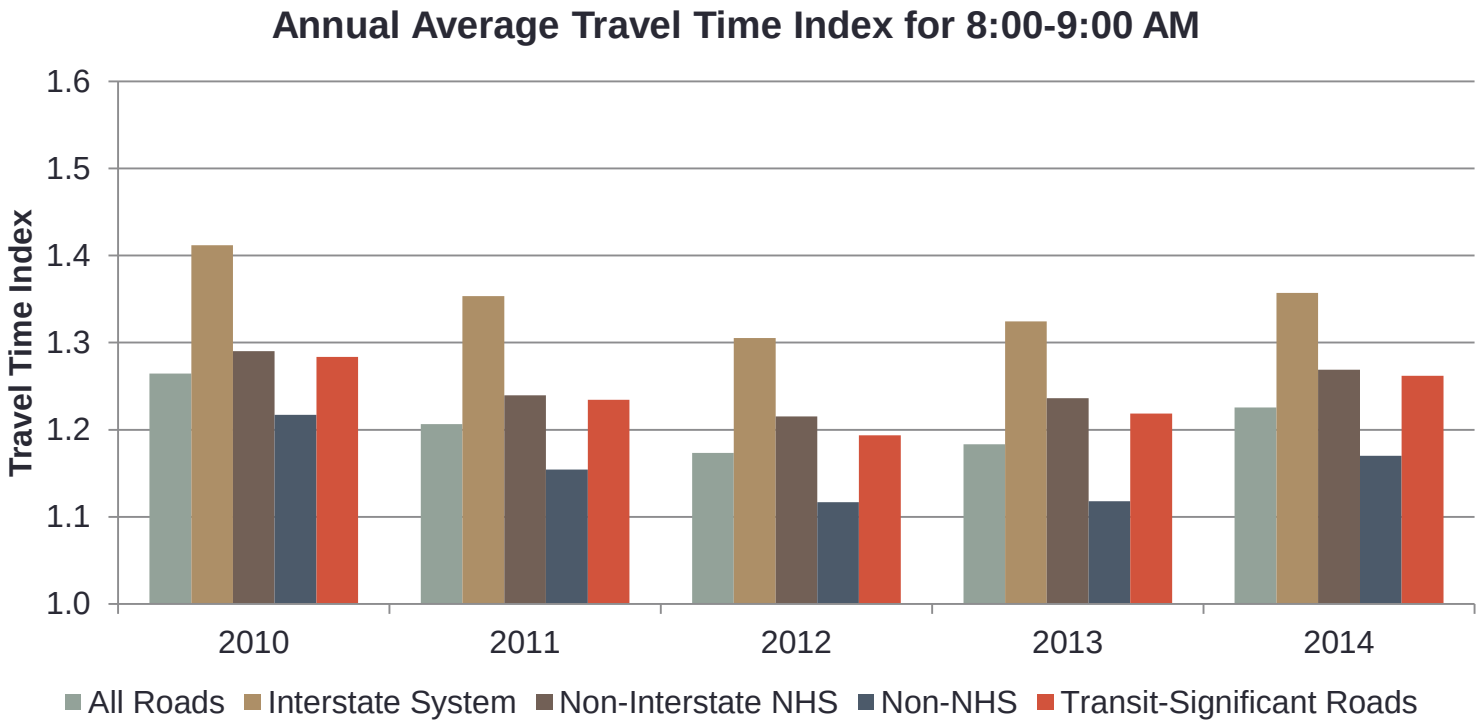


Congestion: Travel Time Index*
*Peak Periods***



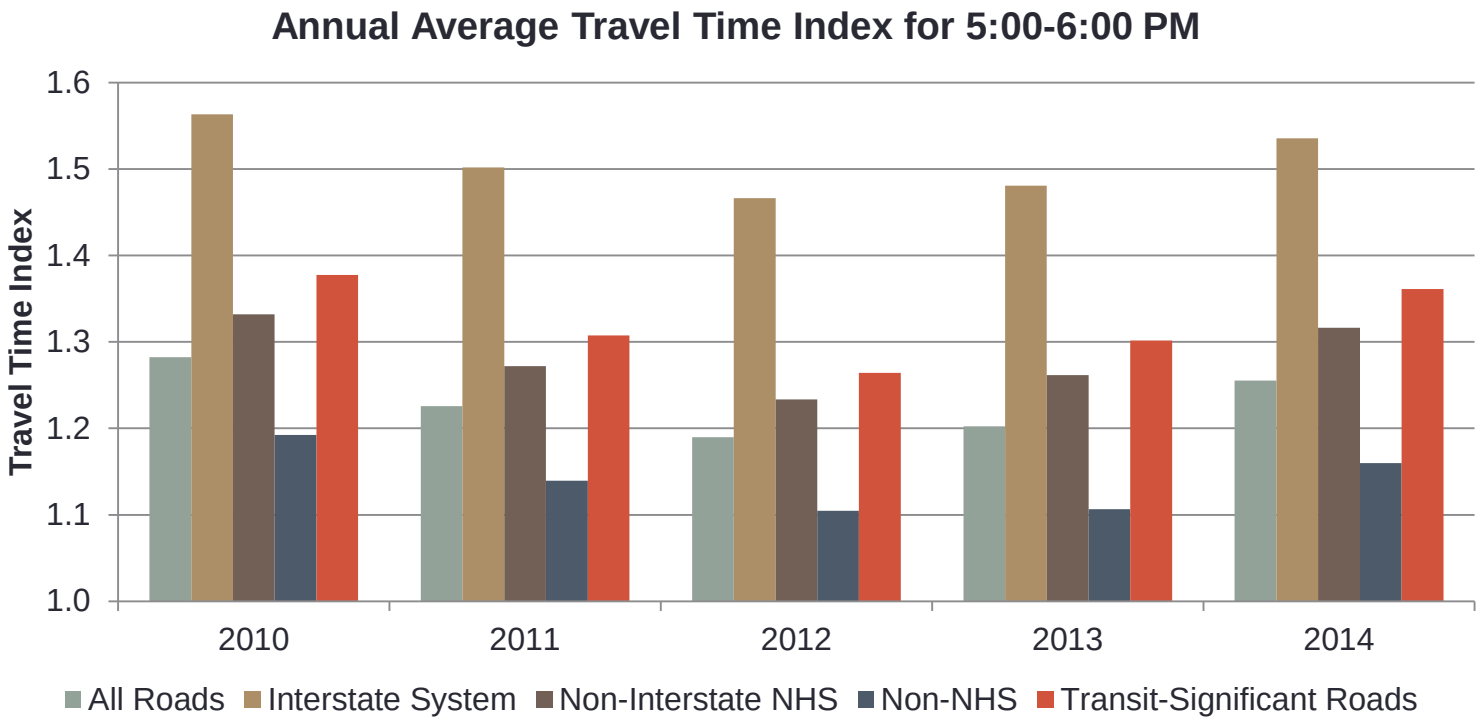
*Travel Time Index = Actual Travel Time / Free Flow Travel Time.
** Peak Periods: 8 hours including 6:00-10:00 AM and 3:00-7:00 PM.

Congestion: Travel Time Index*
*AM Peak Hour***



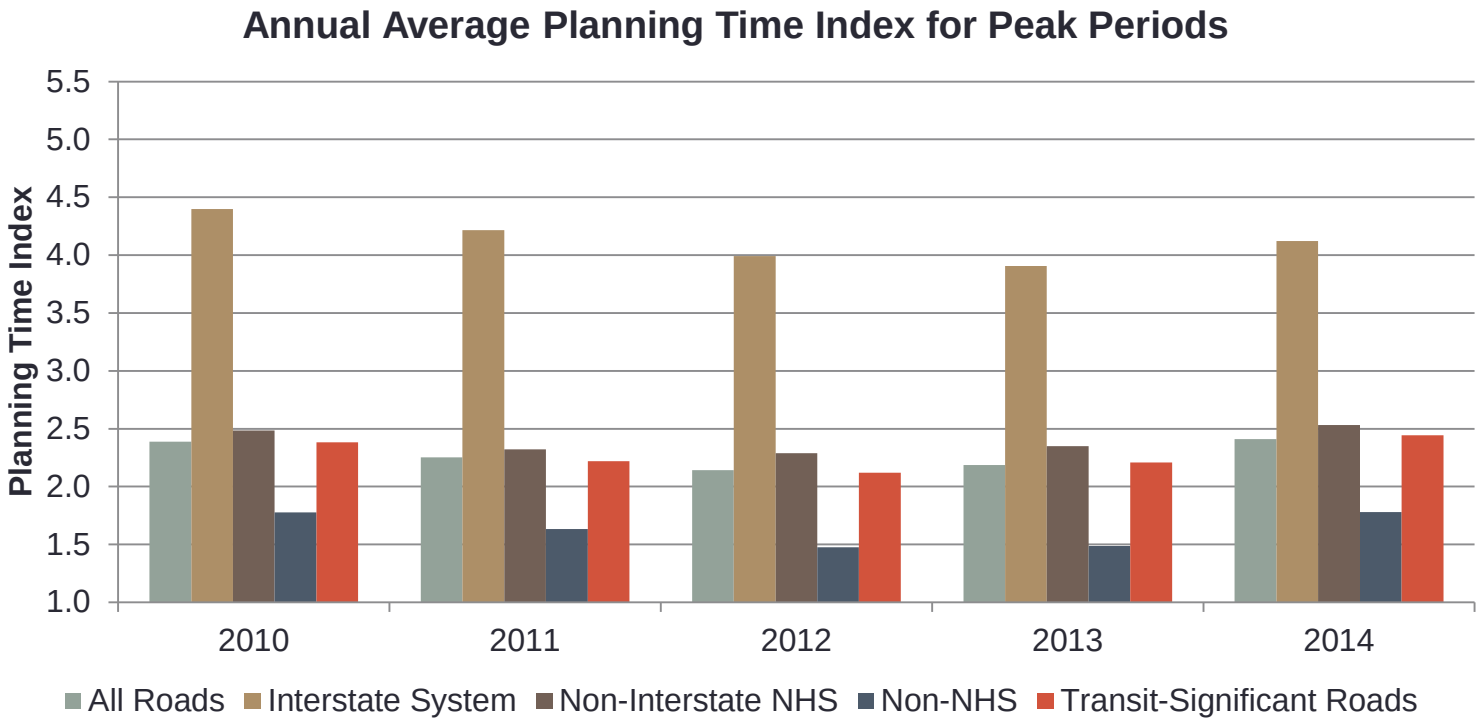
*Travel Time Index = Actual Travel Time / Free Flow Travel Time.
** 8:00-9:00 AM.

Congestion: Travel Time Index*
*PM Peak Hour***



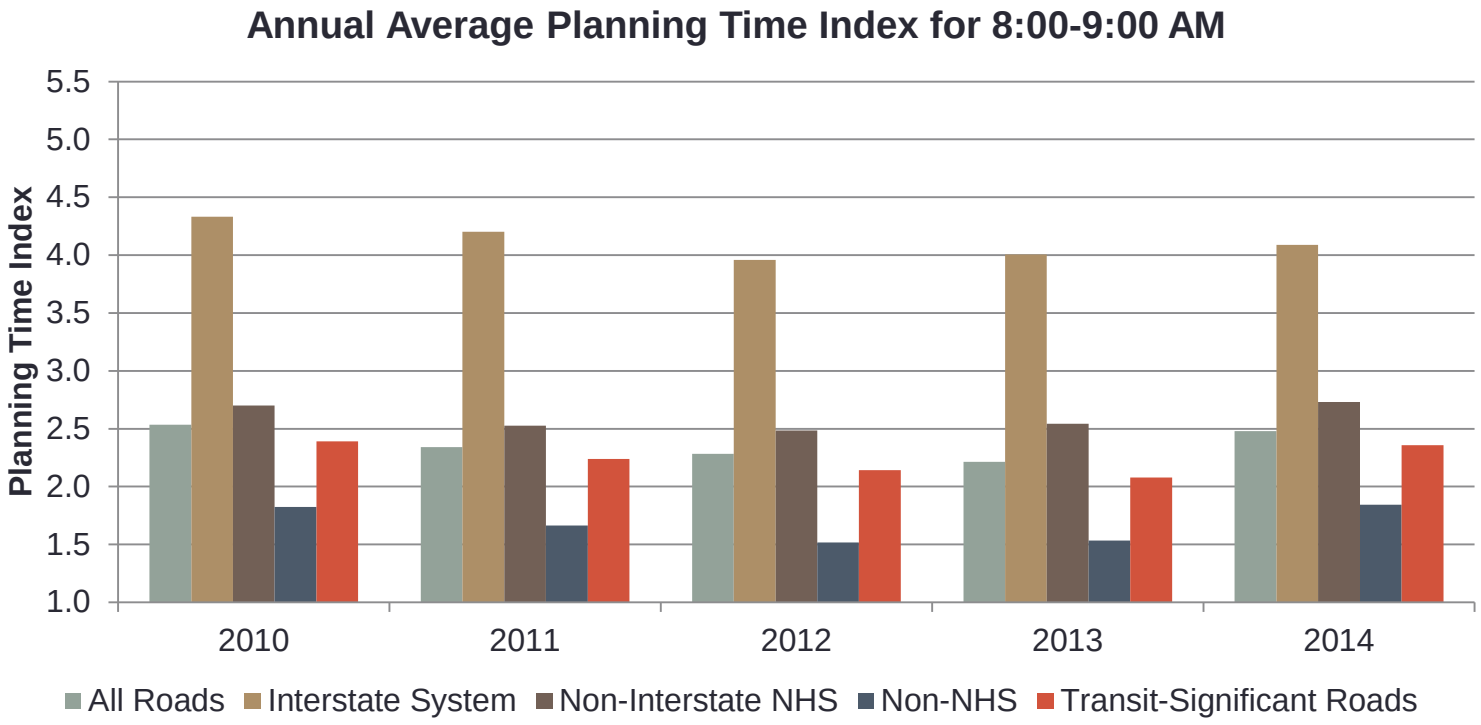
*Travel Time Index = Actual Travel Time / Free Flow Travel Time.
** 5:00-6:00 PM.

Reliability: Planning Time Index*
*Peak Periods***



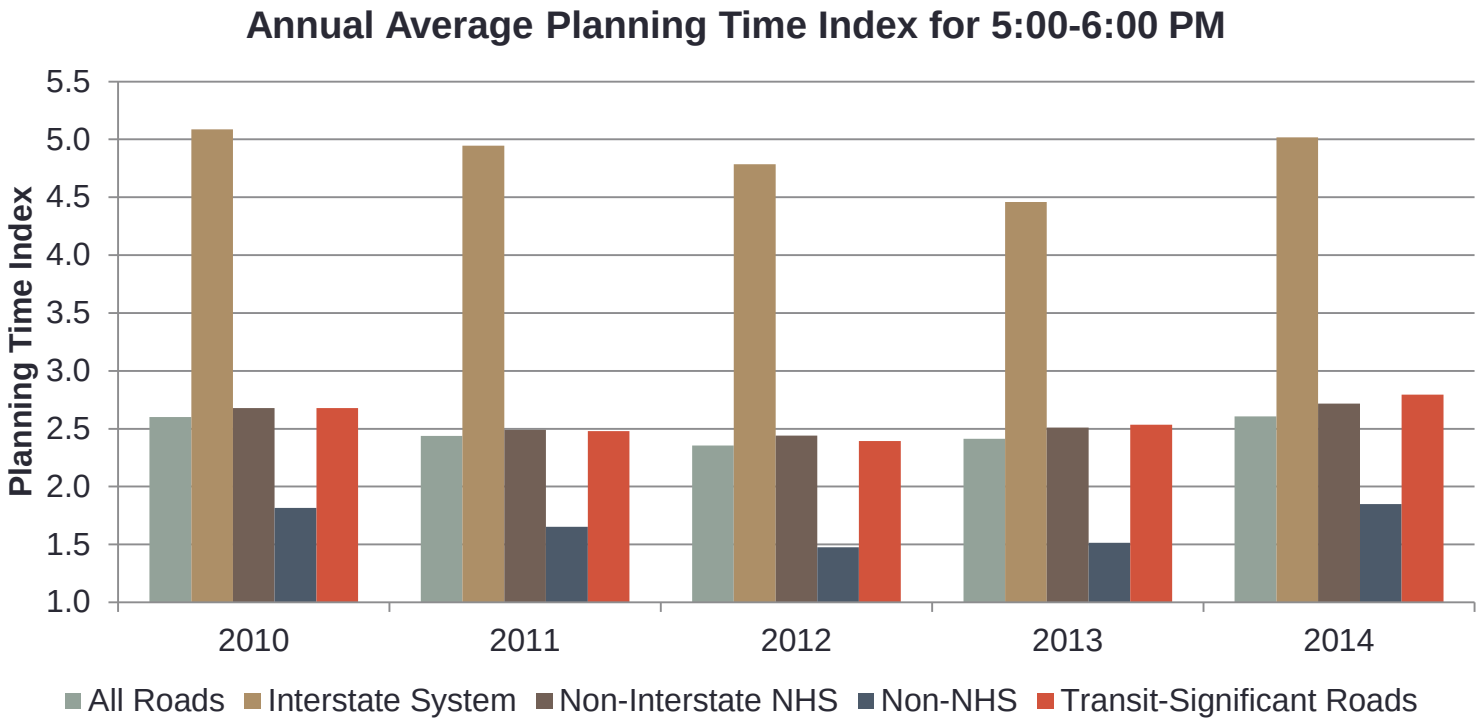
*Planning Time Index = 95th Percentile Travel Time / Free Flow Travel Time.
** Peak Periods: 8 hours including 6:00-10:00 AM and 3:00-7:00 PM.

Reliability: Planning Time Index*
*AM Peak Hour***



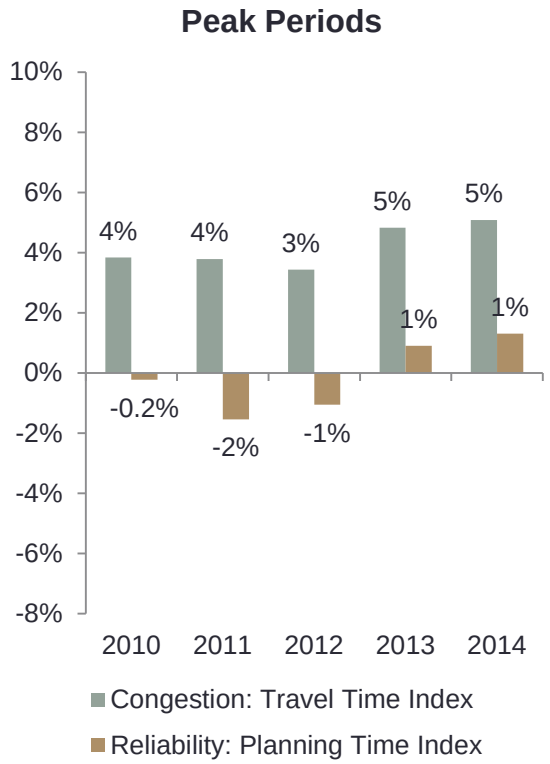
*Planning Time Index = 95th Percentile Travel Time / Free Flow Travel Time.
** 8:00-9:00 AM.

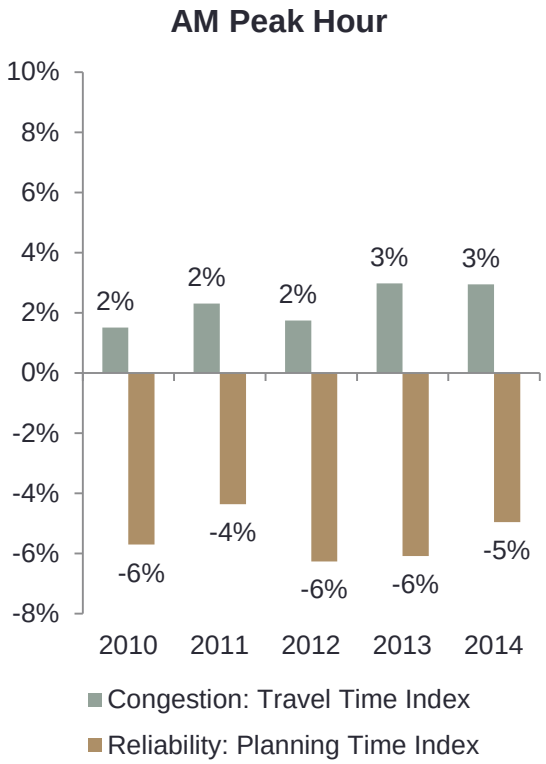
Reliability: Planning Time Index*
*PM Peak Hour***

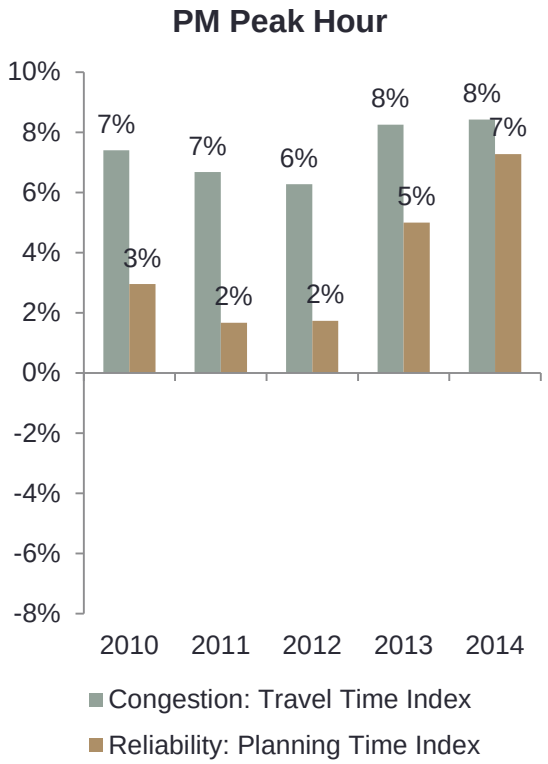


*Planning Time Index = 95th Percentile Travel Time / Free Flow Travel Time.
** 5:00-6:00 PM.

Transit-Significant Roads Compared to *All Roads (Regional Average)**

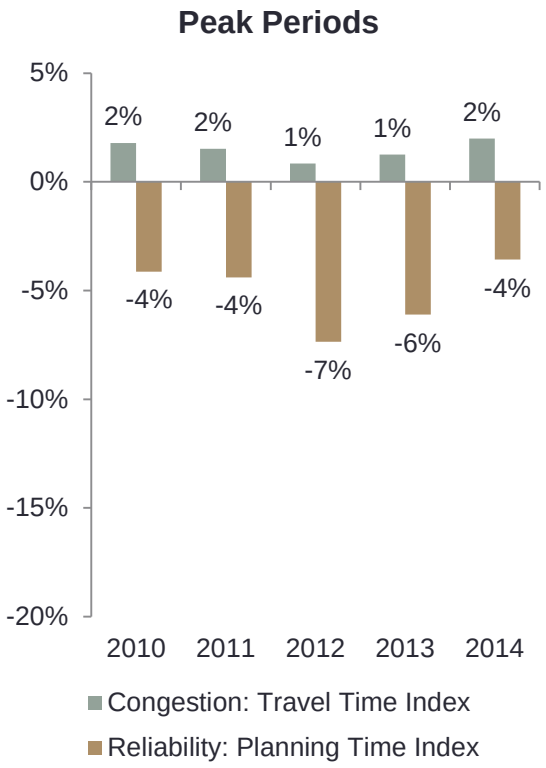


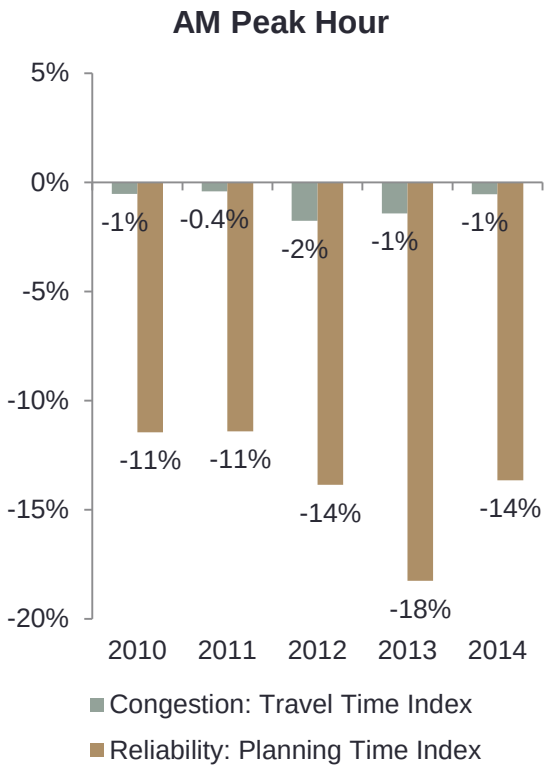


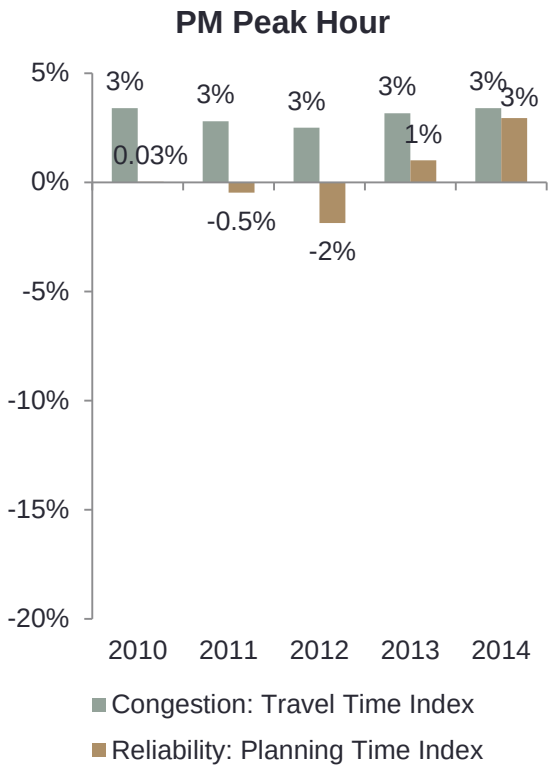


*All Roads covered by probe data: 5500 directional miles in the TPB Planning Area.
Calculation (for each year): (TTI of Transit – TTI of All Roads) / TTI of All Roads * 100%, and do the same for PTI.

Transit-Significant Roads Compared to *Non-Interstate NHS**

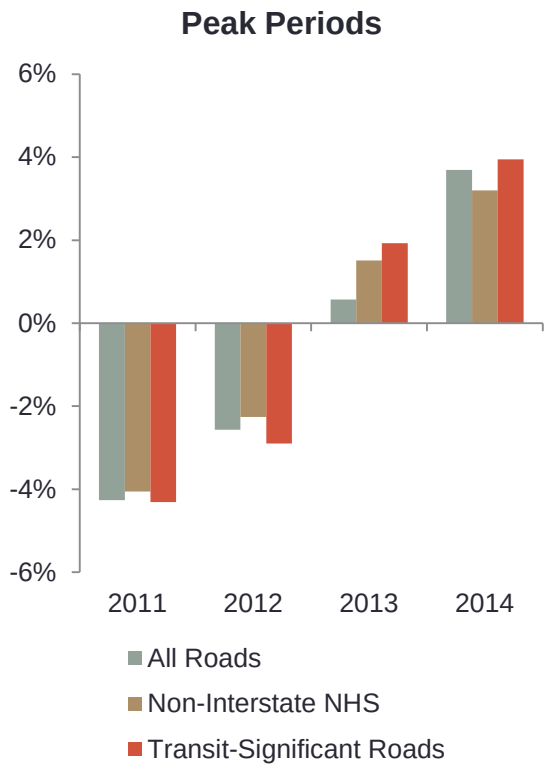


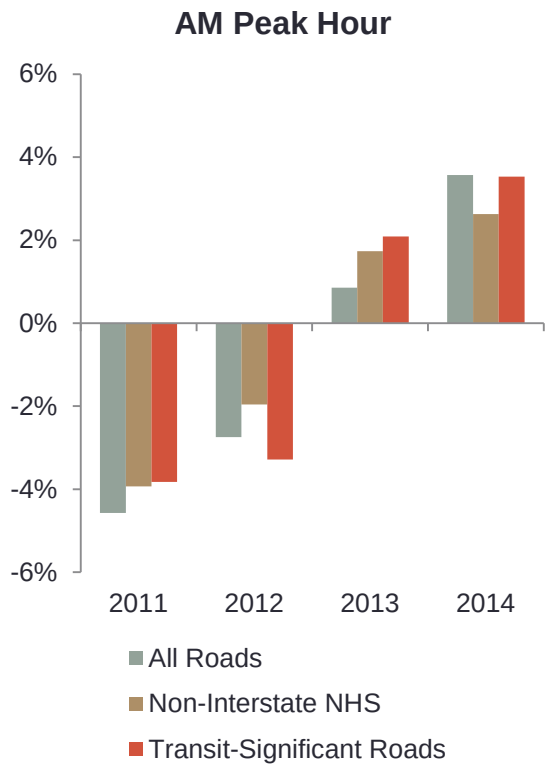


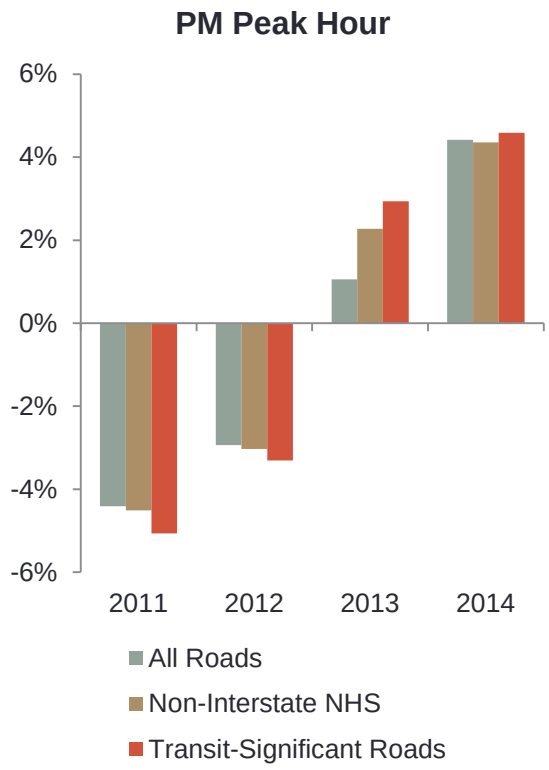


*Non-Interstate National Highway System covered by probe data: 2200 directional miles in the TPB Planning Area.
Calculation (for each year): (TTI of Transit – TTI of Non-IS NHS) / TTI of Non-IS NHS*100%, and do the same for PTI.

Congestion Year-to-Year Changes*

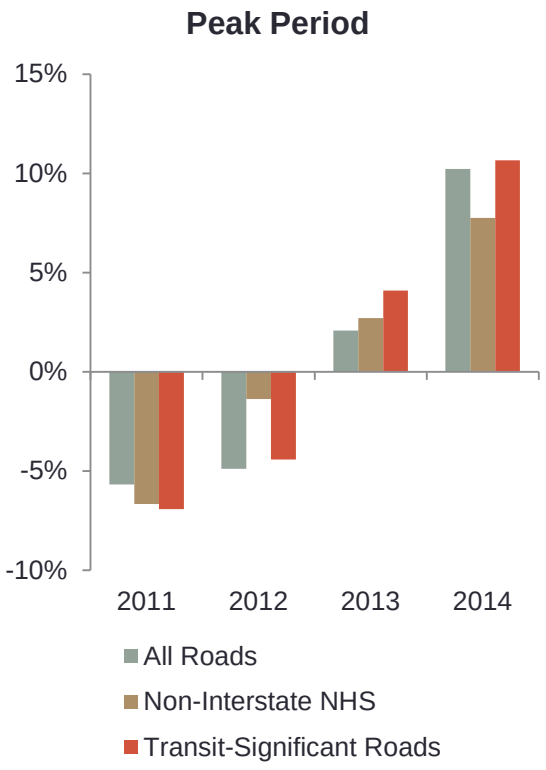


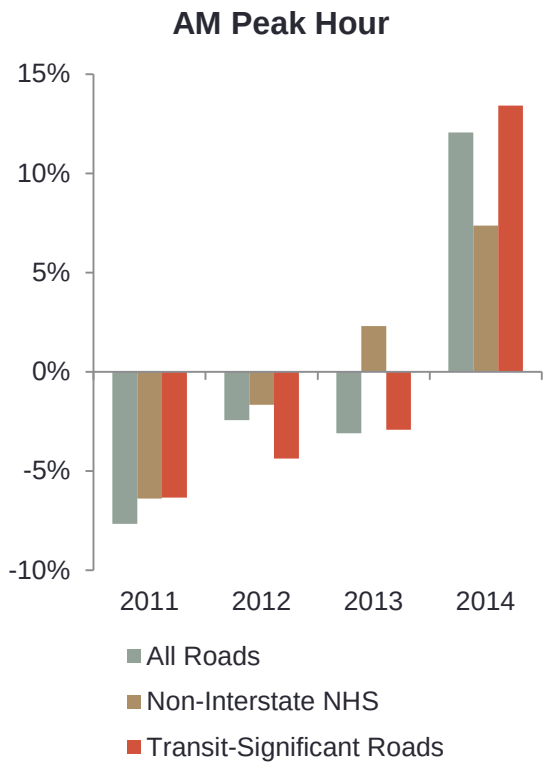


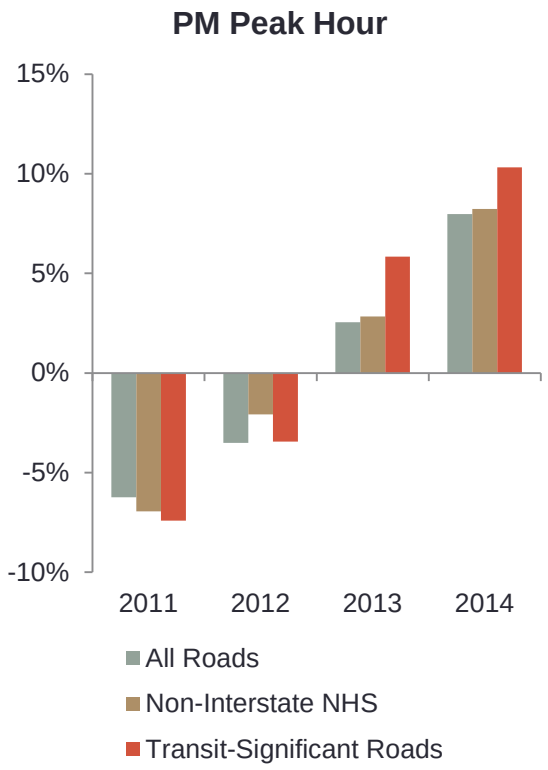


*Calculation (for each road category): (TTI of 2011 – TTI of 2010) / TTI of 2010 * 100%, and do the same for 2012, 2013 and 2014.

Reliability Year-to-Year Changes*

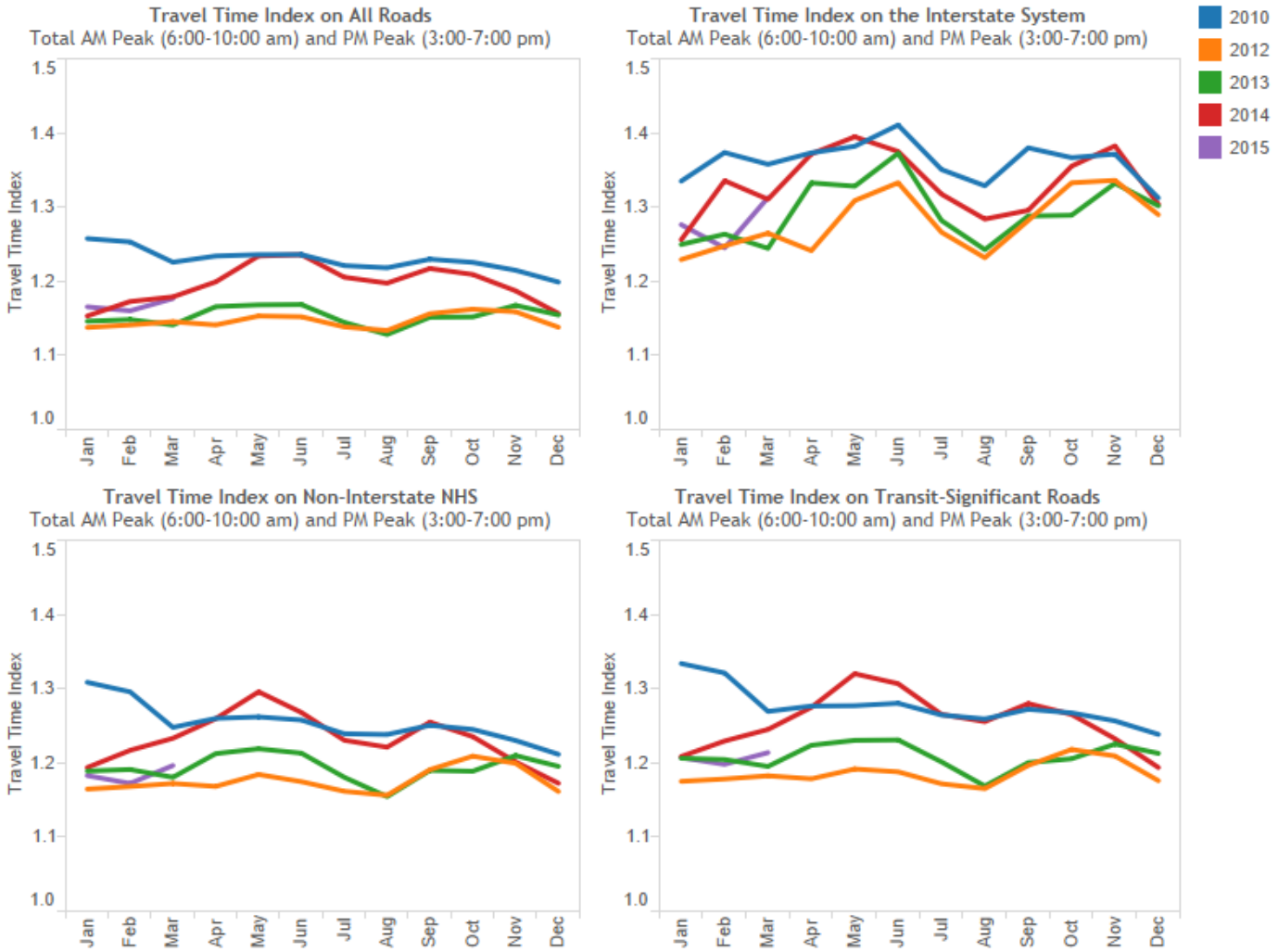




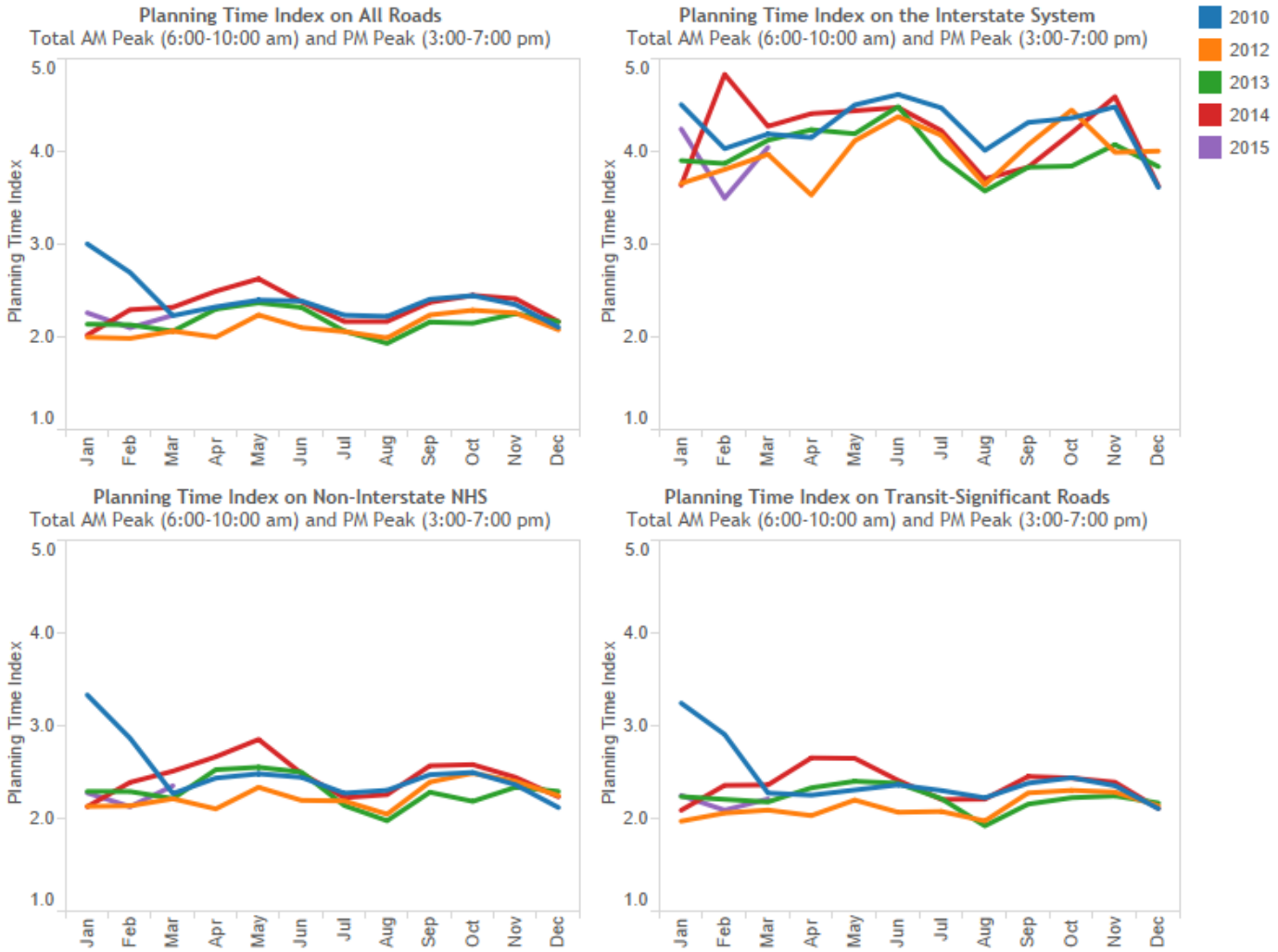


*Calculation (for each road category): (PTI of 2011 – PTI of 2010) / PTI of 2010 * 100%, and do the same for 2012, 2013 and 2014.

Monthly Travel Time Index



Monthly Planning Time Index



Conclusions

- The Transit-Significant Network was **more congested** than regional average:
  - Overall in peak periods: 3-5% more congested
  - AM Peak Hour: 2-3% more congested
  - PM Peak Hour: 6-8% more congested
- The Transit-Significant Network was (4-6%) **more reliable** than regional average in AM Peak Hour, but (2-7%) **less reliable** in PM Peak Hour.
- Performance of the Transit-Significant Network varies **in accordance with** regional average; but the year-to-year changes in the Transit-Significant Network tend to be **slightly larger** than that of regional average.
- The Interstate System, however, was still the most congested and most unreliable highway category.

Next Steps

- Prepare a memorandum to document and report this analysis
- Add and track the performance of the Transit-Significant network in the quarterly National Capital Region Congestion Report (www.mwcog.org/congestion)
- Update/present the analysis as needed/requested

Acknowledgements

Jim Yin, Principal Transportation Engineer
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Regional Public Transportation Subcommittee