Office of Planning and Zoning
Transportation Division

Countywide Travel Demand Model

Presentation to the
Baltimore Peer Review

County Uses for the Model

- Standardize forecasting process
  - Evaluate changes in travel demand due to changes in demographics (jobs & housing)
  - Evaluate changes in travel demand due to modifications of network or changes in travel mode
  - Evaluate impacts of land use changes
  - Identify need for capital projects

What Questions Are Answered?

Westbound traffic on Forest Drive during AM Peak

4-Step Process

1. How many people are making trips each day
2. Where trips are made
3. What modes of travel do people use for trips
4. What is the roadway and transit system traffic volumes and ridership

Model Structure

- Subregional focus of 12/2003 BMC model
- Holding outside constant and adding 74 additional TAZ
- Adding additional minor arterial and collector level facilities
- Creating platform for Small Area Models (SAMs)

Applications

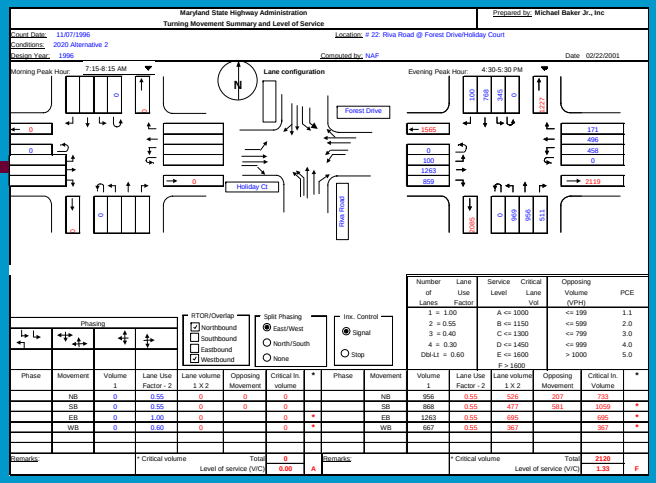
Impact of Development

↓

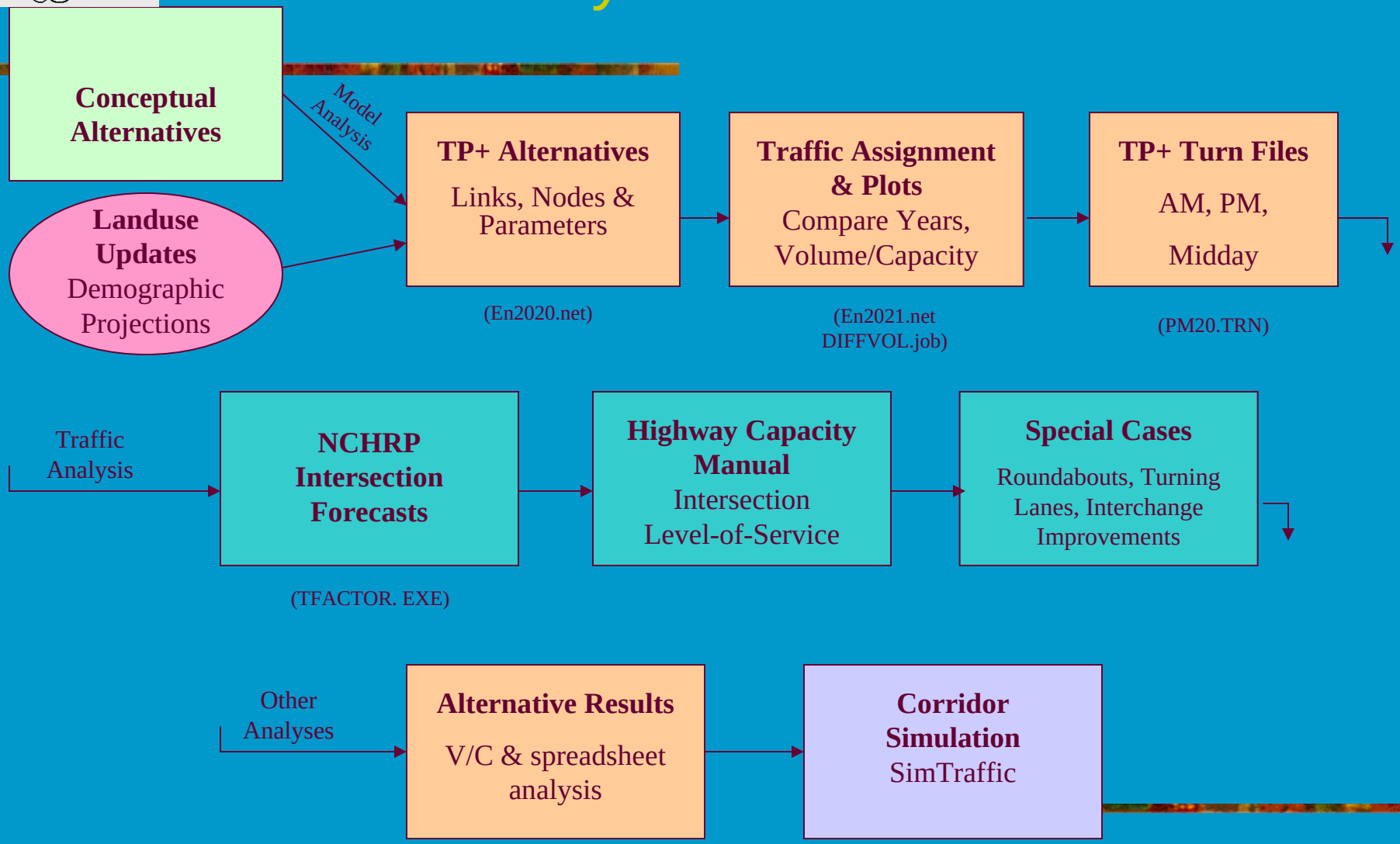
Congestion Analysis, Queuing and Design Specifications

↓

Planning & Forecasting for CIP and CTP Projects



Analysis Process



Analysis Process Continued

TP+ Alternatives

Links, Nodes & Parameters

→

Traffic Assignment & Plots

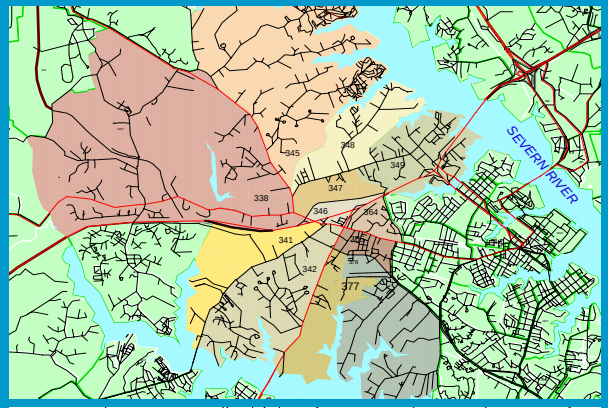
Compare Years, Volume/Capacity

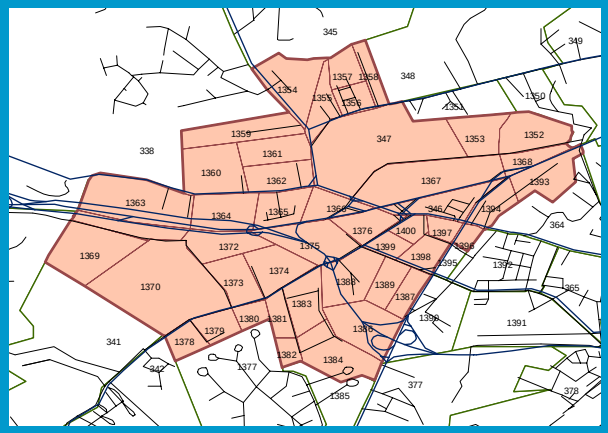
→

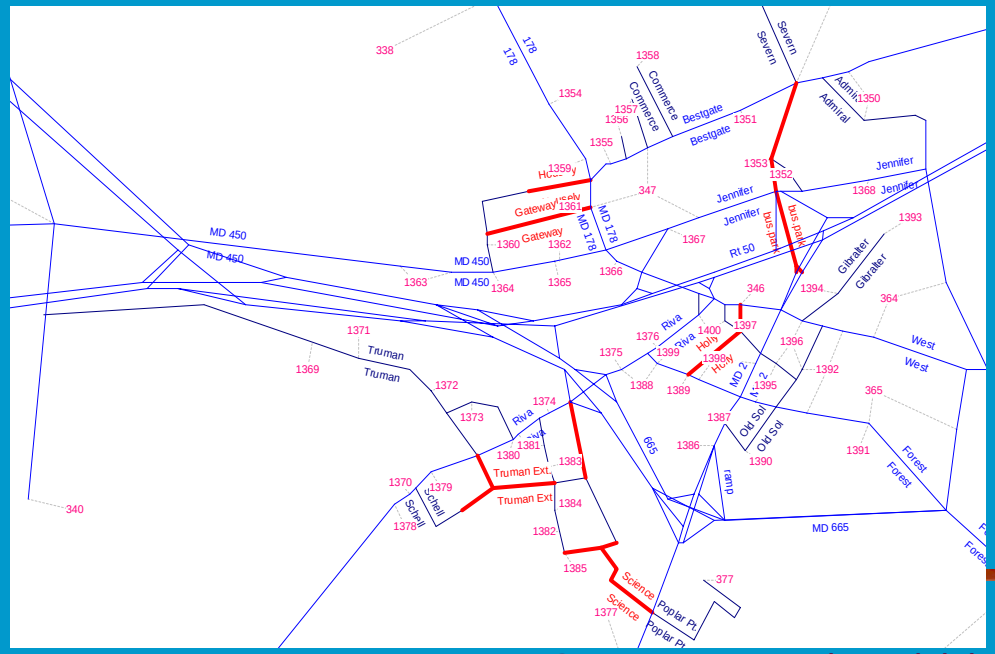
TP+ Turn Files

AM, PM,

Midday

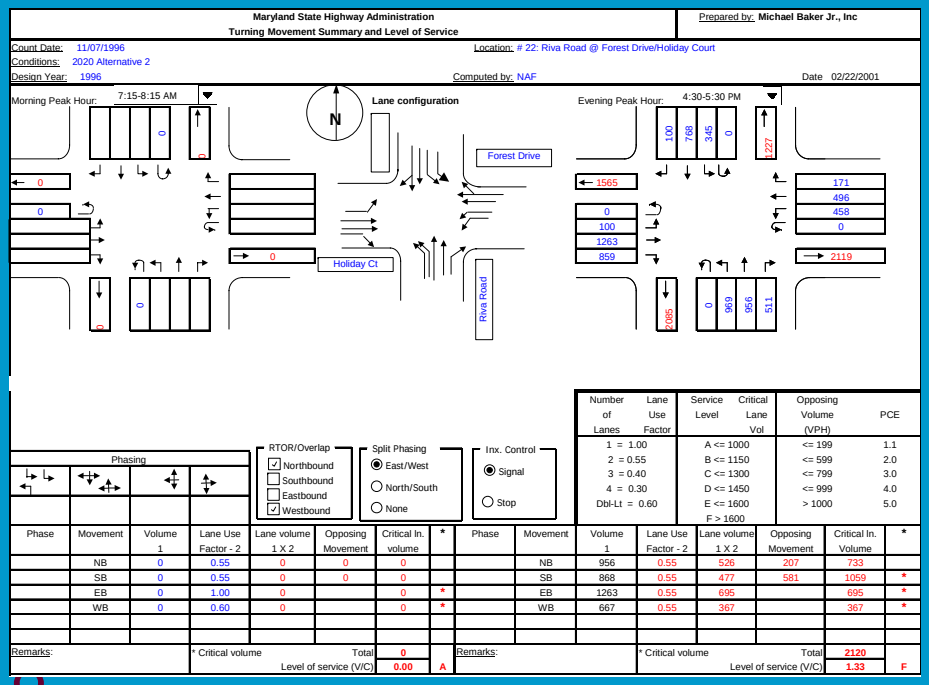






Analysis Process Continued

NCHRP Intersection Forecasts → **Highway Capacity Manual** Intersection Level-of-Service → **Special Cases** Roundabouts, Turning Lanes, Interchange Improvements



- Use traffic model outputs to develop intersection level of service
- Specialized applications for unique intersection configurations

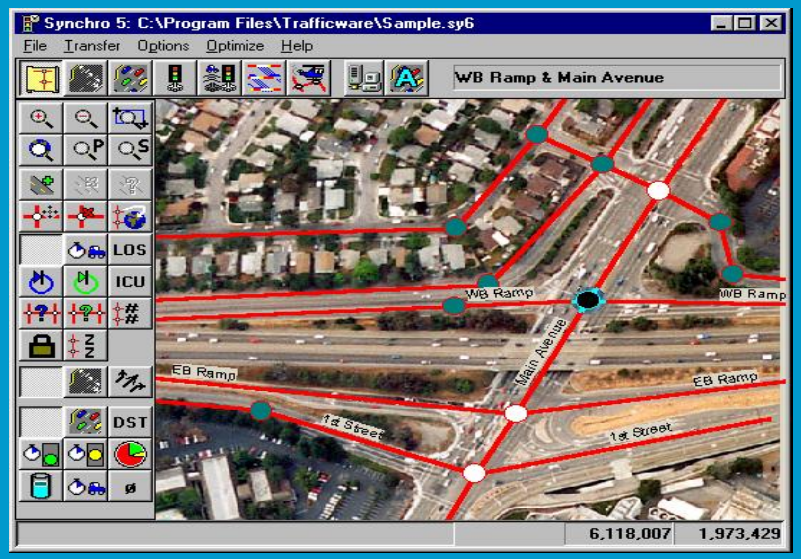
Analysis Process – Step 4

Other Analyses → **Alternative Results**
V/C & spreadsheet analysis → **Corridor Simulation**
SimTraffic

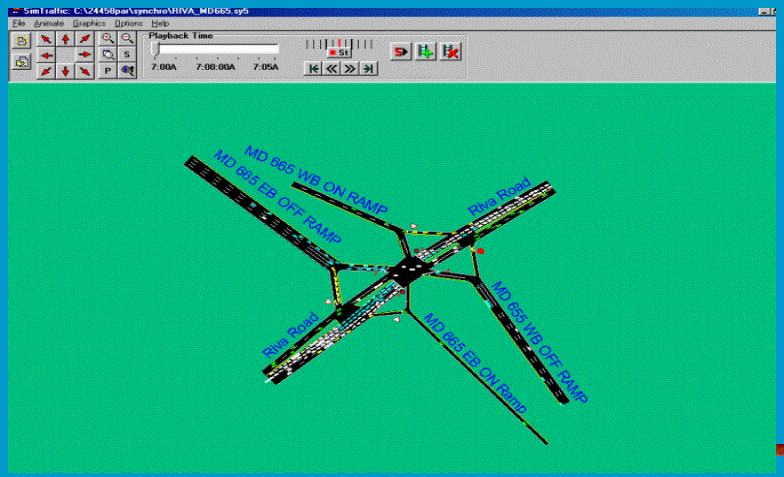
Intersection Number	Street	Crossing Street	1996 Baseline PM Peak		2020 Baseline PM Peak		Alternative 1 PM Peak		Alternative 2 PM Peak		Alternative 3 PM Peak		Alternative 4 PM Peak		Alternative 5 PM Peak		Alternative 6 PM Peak		Alternative 7 PM Peak		Alternative 8 PM Peak		Alternative 9 PM Peak		Alternative 10 PM Peak		TSM Alternative PM Peak		TSM + Transit Alt PM Peak		Final Alternative Alternative 2 and 7 + Riva at 6 Lanes + TSM + Transit PM Peak	
			CLV	LOS	CLV	LOS	CLV	LOS	CLV	LOS	CLV	LOS	CLV	LOS	CLV	LOS	CLV	LOS	CLV	LOS	CLV	LOS	CLV	LOS	CLV	LOS	CLV	LOS	CLV	LOS	CLV	LOS
1	Bestgate Rd.	Industrial Drive	562	A	889	A	936	A	1067	B	889	A	889	A	993	A	889	A											827	A	738	A	886	A
2	Bestgate Rd.	Commerce Drive	678	A	1310	D	1346	D	1310	D	1310	D	1310	D	1310	D	1310	D											1218	C	1087	B	1087	B
3	Defense Hwy.-MD Rte. 450	Generals Hwy.- MD Rte. 178	1261	C	2187	F	2425	F	2276	F	2251	F	2569	F	2304	F	2287	F					4-leg	Fail			1923	F	1786	F	2265	F
4	Jennifer Rd.	Annapolis Mall/ Restaurant Park Entrance	725	A	1834	F	956	A	1143	B	1063	E	1000	A	1481	E	1000	A					5-leg	Fail			1701	F	1520	E	949	A
5	Jennifer Rd.	Annapolis Plaza Entrance	694	A	1087	B	1274	C	1094	B	1250	C	1087	B	1019	B	1087	B									1011	A	902	A	908	A
6	West St.- MD Rte. 450	Jennifer Rd., US 50 onramp	1601	F	1733	F	1292	C	1123	B	1691	F	1557	E	1601	F	1733	F					5-leg	Fail			1611	F	1438	D	932	A
7	West St.- MD Rte. 450	Riva Rd. Connector	1438	D	1755	F	1223	C	1336	D	1760	F	1794	F	1835	F	1935	F	FF RT 2	FF RT 2	1869	F	5-leg	Pass			1632	F	1457	E	1109	B
8	West St.- MD Rte. 450	Riva Rd.	1576	E	1936	F	1245	C	1499	E	1350	D	1577	E	1526	E	1532	E	2011	F							1707	F	1524	E	1244	C
9	West St.- MD Rte. 450	Somerville Rd.	1058	B	1855	F	1546	E	1268	C	1721	F	1717	F	1847	F	1696	F	FF 450	FF 450	2272	F					1735	F	1540	E	1052	B
10	West St.- MD Rte. 450	Solomons Island Rd.- MD Rte. 2	1688	F	2613	F	2701	F	2395	F	2749	F	2679	F	2834	F	2724	F	1431	D							2430	F	2189	F	1431	D
11	Solomons Island Rd.- MD Rte. 2	Somerville Rd.	973	A	1334	D	1539	E	1083	B	1334	D	1232	C	1360	D	1543	E	336	A							1241	C	1107	B	336	A
12	Riva Rd.	Sears Entrance / Parole Plaza	805	A	1313	D	856	A	633	A	1001	B	1153	C	1313	D	1313	D									1221	C	1090	B	525	A
13	Riva Rd.	Hearne Rd. (Festival at Riva)	1175	C	1604	F	1123	B	1670	F	1307	D	1425	D	1604	F	1604	F									1492	E	1331	D	1099	B
14	Forest Dr.	Festival at Riva (Town Center Blvd.)	907	A	1218	C	1415	D	1890	F	1218	C	1218	C	1218	C	1218	C									1133	B	1011	B	1569	E
15	Solomons Island Rd.- MD Rte. 2	Old Solomons Island Rd.	626	A	797	A	792	A	797	A	797	A	797	A	797	A	797	A									741	A	662	A	662	A
16	Bestgate Rd.	Seven Grove Rd.	490	A	783	A	972	A	783	A	783	A	783	A	783	A	783	A									728	A	650	A	650	A
17	Bestgate Rd.	Admiral Dr.	557	A	660	A	583	A	660	A	660	A	660	A	660	A	660	A									614	A	548	A	548	A
18	Bestgate Rd.	Generals Hwy.- MD Rte. 178	1126	B	2304	F	2140	F	2020	F	2308	F	2301	F	2318	F	2301	F									1931	F	1775	F	1967	F
19	Jennifer Rd.	Admiral Dr.	975	A	1389	D	1378	D	1389	D	1389	D	1389	D	1389	D	1389	D									1292	C	1153	C	1153	C
20	Jennifer Rd.	US 50 On ramp	324	A	926	A	1467	E	926	A	926	A	926	A	926	A	926	A									861	A	769	A	769	A
21	Defense Hwy.-MD Rte. 450	Housley Rd./ Home Depot	792	A	1855	F	1601	F	1855	F	1855	F	3712	F	3712	F	1855	F	1719	F							1725	F	1540	E	1540	E
22	Forest Dr. / Holiday Court	Riva Rd.	1208	C	1989	F	1468	E	2120	F	1675	F	1989	F	1989	F	1989	F									1846	F	1648	F	1974	F
23	Riva Rd.	Aris T. Allen Blvd.- MD Rte. 665	1970	E	2608	F	2055	E	2608	F	2414	F	2224	F	2608	F	2608	F							2059	E	2326	F	2077	E	2432	F
24	Riva Rd.	Admiral Cochrane Dr.	1710	E	2021	F	1943	F	2021	F	2021	F	2109	F	2021	F	2021	F									1880	F	1677	F	1345	D
25	Riva Rd.	Truman Pkwy.	1383	E	2247	F	2270	F	2247	F	2247	F	2504	F	2247	F	2247	F									2090	F	1865	F	1464	E
26	Forest Dr.	Solomons Island Rd.- MD Rte. 2	1390	D	2488	F	2322	F	2792	F	2488	F	2422	F	2488	F	2488	F	1553	E							2223	F	2047	F	1289	C
27	Solomons Island Rd.- MD Rte. 2	Annapolis Harbour Center	1165	C	1395	D	1382	D	1395	D	1395	D	1395	D	1395	D	1395	D									1297	C	1158	C	1158	C
28	Solomons Island Rd.- MD Rte. 2	Aris T. Allen Blvd.- MD Rte. 665	752	A	1155	C	1158	C	1155	C	1155	C	1155	C	1155	C	1155	C									1074	B	959	A	959	A
29	Solomons Island Rd.- MD Rte. 2	Lake Shore Rd.	1003	B	1588	E	1446	D	1588	E	1588	E	1588	E	1588	E	1588	E									1477	E	1318	D	1318	D
30	West St.- MD Rte. 450	Old Solomons Island Rd.	785	A	1137	B	1143	B	1137	B	1137	B	1137	B	1137	B	1137	B									1057	B	944	A	944	A

Post-Process

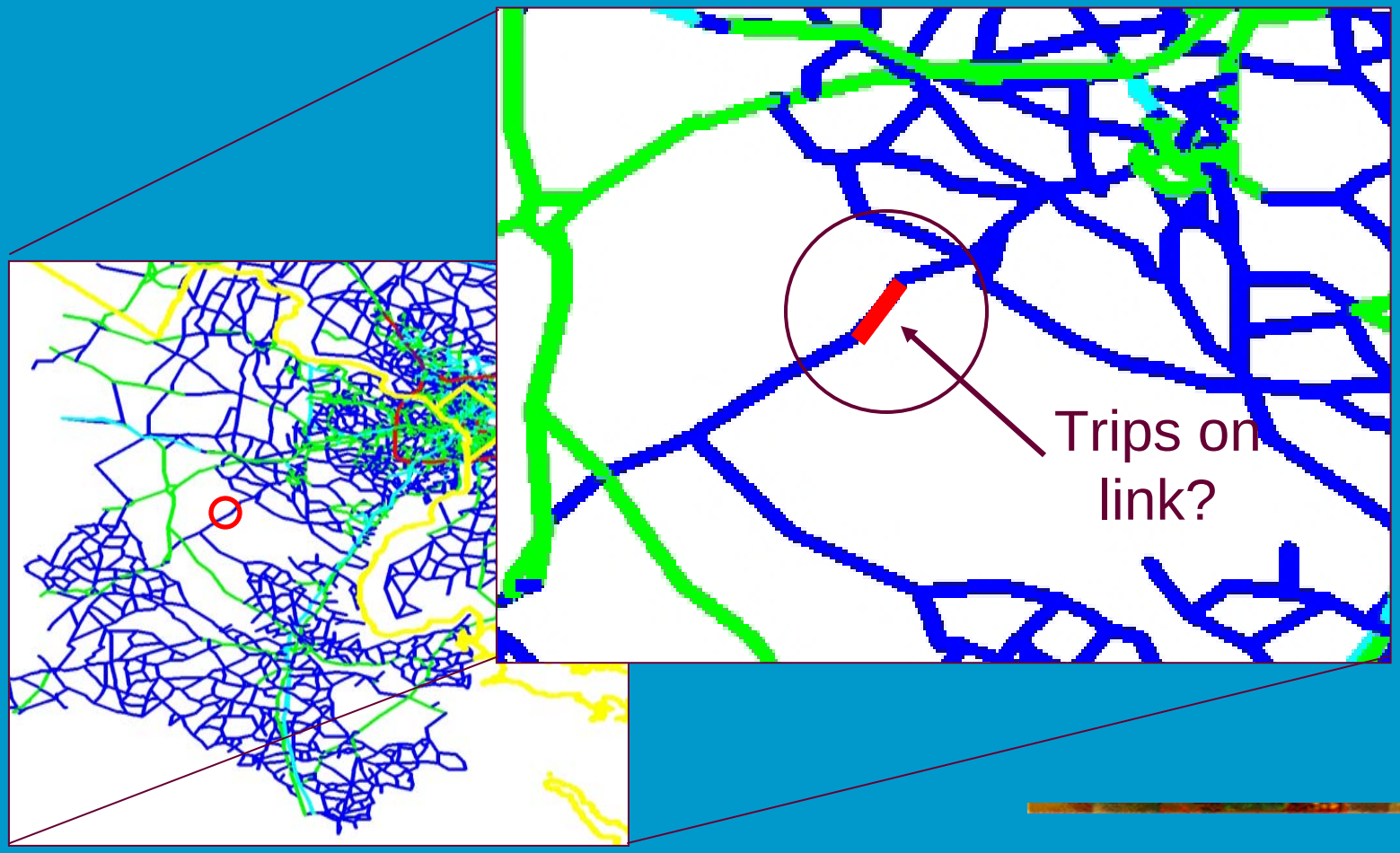
- Intersection Simulation



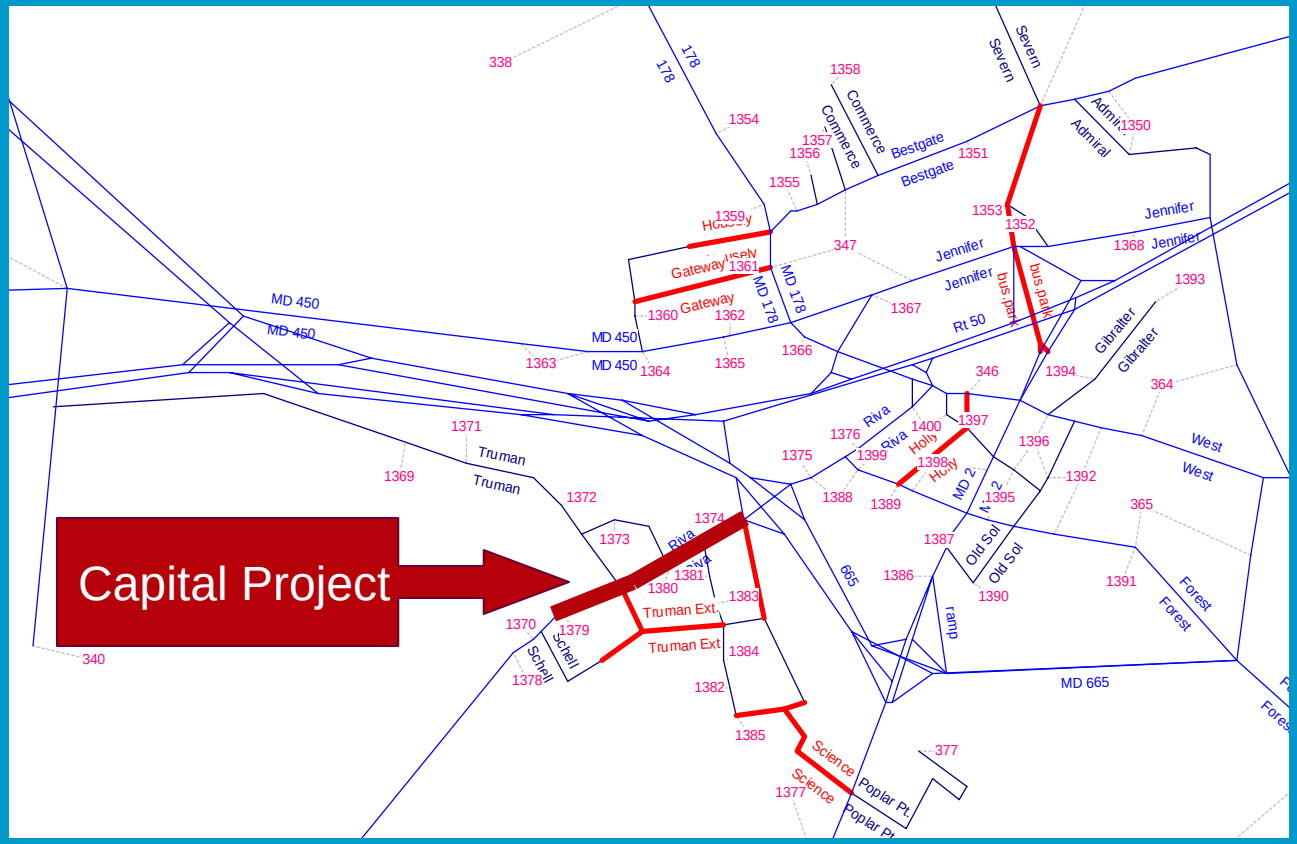
- Corridor Simulation



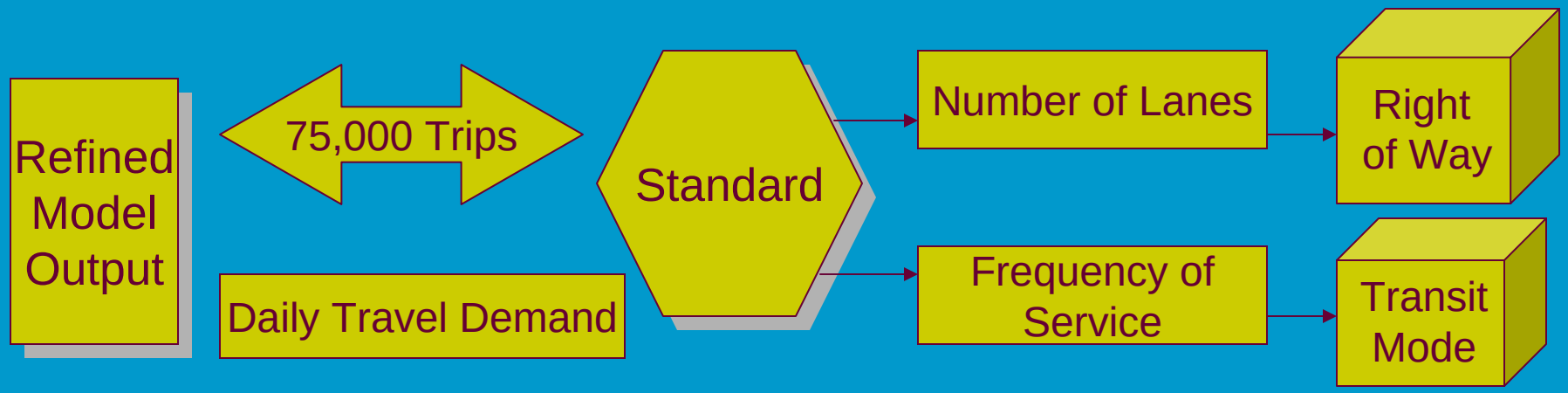
Model Outputs
Traffic Volumes and Ridership



Model Outputs
Capital Program Input

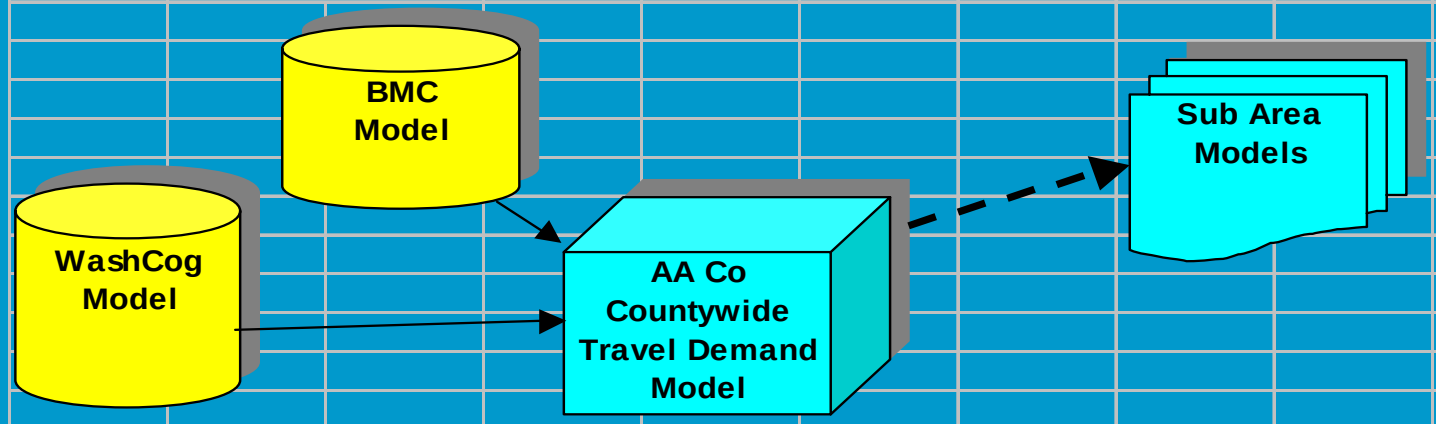


Input for Planning Needs



Small Area Model Process

Sub Area Models	
SA1	Annapolis Neck. Parole GMA, Broadneck SAP, City of Annapolis
SA2	Crofton, Odenton, Jessup-MD City, Severn, BWI-Linthicum SAPs
SA3	To be determined
SA4	To be determined



Why Small Area Models (SAMs)?

- Consistency with Council Resolution for Annapolis Neck Small Area Plan
- Better assignment capabilities in areas with most planned development
- Assist in SAP, CIP, CTP recommendations

Schedule for SAMs

Action	Start Date	End Date
Receive BMC Regional Model	/////////	12/03
Develop Countywide Model (AATRVM1)	12/03	08/04
Develop SAM1	08/04	11/04
Execute SAM1	12/04	12/04
Report Results SAM1	12/04	01/05
Develop SAM2	11/04	03/05