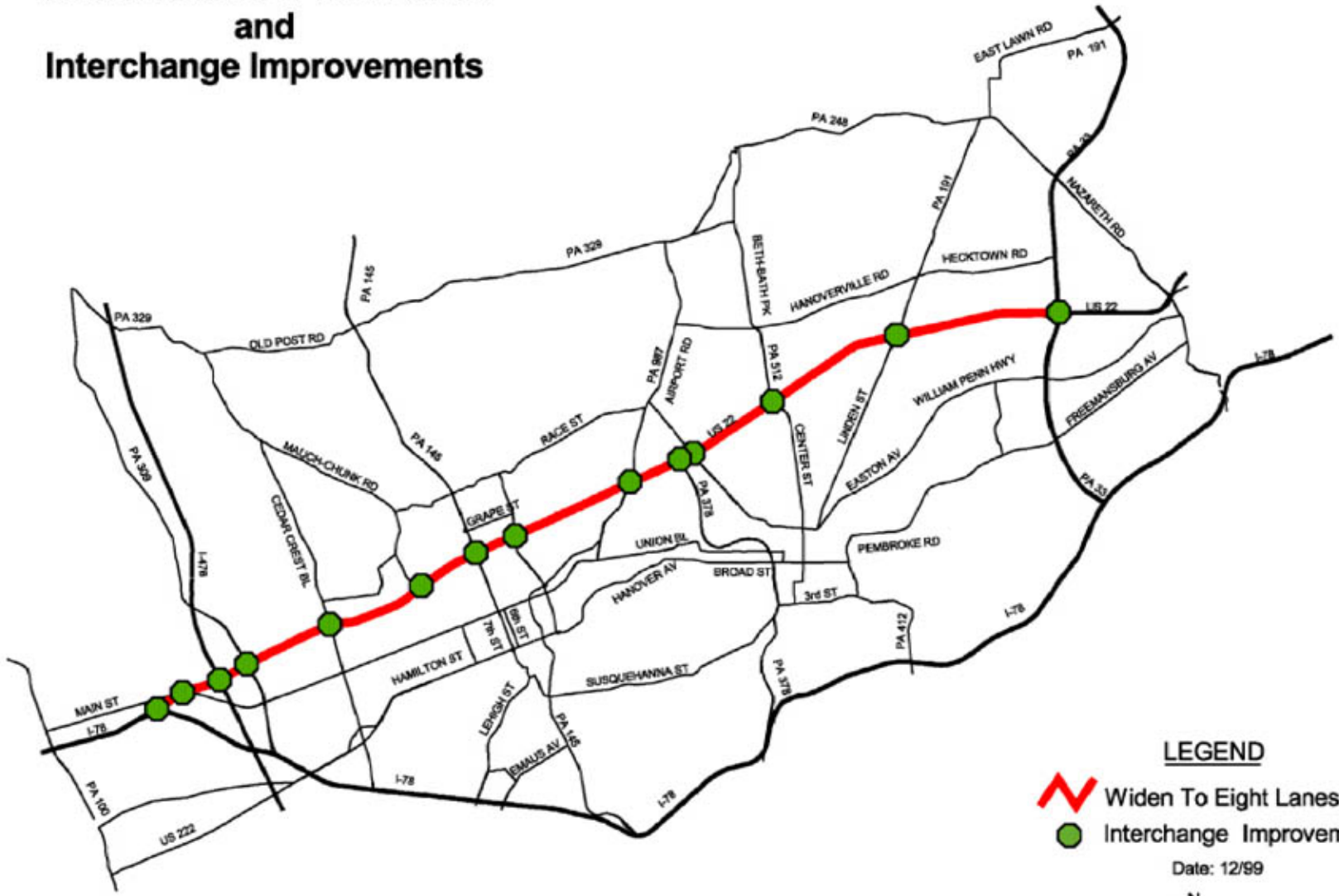
SCENARIO A01
WIDEN U.S. ROUTE 22 TO 8 LANES AND INTERCHANGE IMPROVEMENTS

This scenario studies the effects of widening U.S. Route 22 to eight lanes. U.S. Route 22 is widened from existing four lanes to eight lanes from the I-78/U.S. Route 22 merge point in the western portion of Lehigh County to Route 33 in Northampton County. Interchanges along U.S. Route 22 are also upgraded between these two end points.

Scenario A01
Widen Route 22 To 8 Lanes
and
Interchange Improvements



LEGEND

Widen To Eight Lanes

Interchange Improvements

Date: 12/99

N

0 2 4 Miles

Prepared by:Lehigh Valley Planning Commission

SCENARIO A01: MEASURES OF EFFECTIVENESS RELATING TO PROJECT NEEDS

Improve Safety on U.S. Route 22

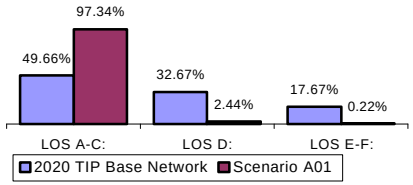
In the U.S. Route 22 corridor, most interchanges do not meet current design standards (*A Policy on Geometric Design of Highways and Streets, 1994 AASHTO Greenbook* and *PennDOT Design Manual, Part 2, Highway Design*; *Publication 13M,* September 2000). The Needs Report found that over 65 percent of the crashes occurred at interchange areas. Along with the improvement in the overall interchange configuration to meet current design standards, the length of acceleration and deceleration lanes at interchange ramps will also increase with the planned interchange improvements in this scenario. Additional lanes added to the mainline U.S. Route 22 should accommodate more traffic with wider gaps between vehicles. This will allow more room to maneuver a vehicle should traffic conditions change unexpectedly. Ultimately, this should result in crash reduction.

IMPACT: Positive

Reduce Congestion on U.S. Route 22

Percent of Vehicle Miles of Travel (VMT) by Level Of Service (LOS)
Route 22- PM Peak Hour

	2020 Base	Scenario A01
LOS A-C:	49.66%	97.34%
LOS D:	32.67%	2.44%
LOS E-F:	17.67%	0.22%



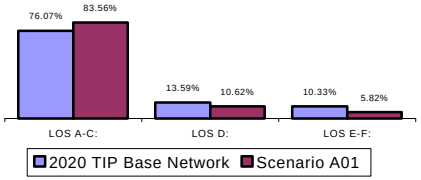
- Comparing the 2020 TIP base year with eight-lanes on U.S. Route 22, the level of travel occurring under desirable traffic conditions of LOS A through C in the afternoon peak hour has improved by 48 percent and a significant reduction from 18 percent to less than 0.5 percent is achieved in the breakdown traffic conditions of LOS E and F on U.S. Route 22.

IMPACT: Positive

Recommended improvements must not increase congestion on regional road network

Percent of Vehicle Miles of Travel (VMT) by Level Of Service (LOS)
All Lehigh Valley Region Roads - PM Peak Hour

	2020 Base	Scenario A01
LOS A-C:	76.07%	83.56%
LOS D:	13.59%	10.62%
LOS E-F:	10.33%	5.82%



- The level of travel occurring under desirable traffic conditions of LOS A through C in the afternoon peak hour has improved by 7.5 percent and a reduction of 4.5 percent is achieved in the breakdown traffic conditions of LOS E and F in the Lehigh Valley region.

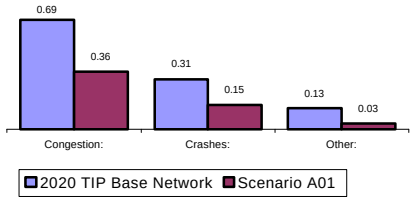
IMPACT: Positive

Reduce Impacts of incidents on U.S. Route 22 traffic flow

Source of Delay
Route 22- PM Peak Hour

Source of Delay	2020 Base Delay*	Scenario A01 Delay*	Difference
Congestion:	0.69	0.36	47.83%
Crashes:	0.31	0.15	51.61%
Other:	0.13	0.03	76.92%
Total Delay	1.13	0.55	51.33%

** Annual Delay Measured in Millions of Hours*



- The source of delay due to various types of incidents is used to gauge the progression of traffic on U.S. Route 22 and is measured in millions of hours per year for this scenario. Annual delay caused by congestion has decreased by half on U.S. Route 22, delay due to crashes has also decreased by half, and delay due to breakdowns decreased more than 75 percent on U.S. Route 22.

- Total delay due to all incidents on U.S. Route 22 has been reduced by 51 percent as compared to the "no-build" condition.

IMPACT: Positive

Support Land Use and Redevelopment Goals of Regional Comprehensive Plan

Important goals stated within the Lehigh Valley Regional Comprehensive Plan such as economic development, constructing highways and bridge improvements that are compatible with the built and natural environments and farmland preservation are preserved with the implementation of this scenario. It encourages urban redevelopment of facilities within the cities by improving a major arterial that will provide safe and efficient access and movement of traffic to and from these major traffic generators. Conversely, implementing this scenario will also help to discourage undesirable growth in areas recommended for rural development in the regional comprehensive plan by not improving access.

IMPACT: Positive

FINDINGS/CONCLUSIONS

This scenario eliminates major congestion areas and therefore reduces delay on U.S. Route 22 as well as in the entire Lehigh Valley region. It improves current areas on U.S. Route 22 where crashes are prevalent. The interchange improvements, along with the widening to eight lanes of U.S. Route 22 has the added benefit of safety and reduction of delay due to incidents. This scenario meets all five needs of this project.