
Summary

*Newark Area
Transportation Study*

Division of Highways
Department of Transportation
State of Delaware

March 1989

Vanasse Hangen Brustlin, Inc.

NEWARK AREA TRANSPORTATION STUDY

SUMMARY

Prepared for

THE DIVISION OF HIGHWAYS
DEPARTMENT OF TRANSPORTATION
STATE OF DELAWARE
KERMIT H. JUSTICE, SECRETARY

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PREFACE/ACKNOWLEDGEMENTS

The Newark Area Transportation Study (NATS) was conducted for the Systems Planning Section, Division of Highways, State of Delaware Department of Transportation, which provided the traffic volume forecasts used throughout the study process.

This document is a summary of the highlights of a series of technical memoranda and a final report issued during the course of the study. It also focuses on short- and long-range improvement strategies and presents a program of prioritized long-term recommendations.

Input from various State and City officials, as well as a specially-designated Citizens Advisory Committee, was received throughout the course of the study. Vanasse Hangen Brustlin, Inc. wishes to acknowledge the valuable assistance and cooperation of all of the many groups and organizations which took part in this effort at the State and local levels, particularly the following:

- Citizens Advisory Committee
- City of Newark Planning Department
- City of Newark Police Department
- Delaware State Police
- WILMAPCO

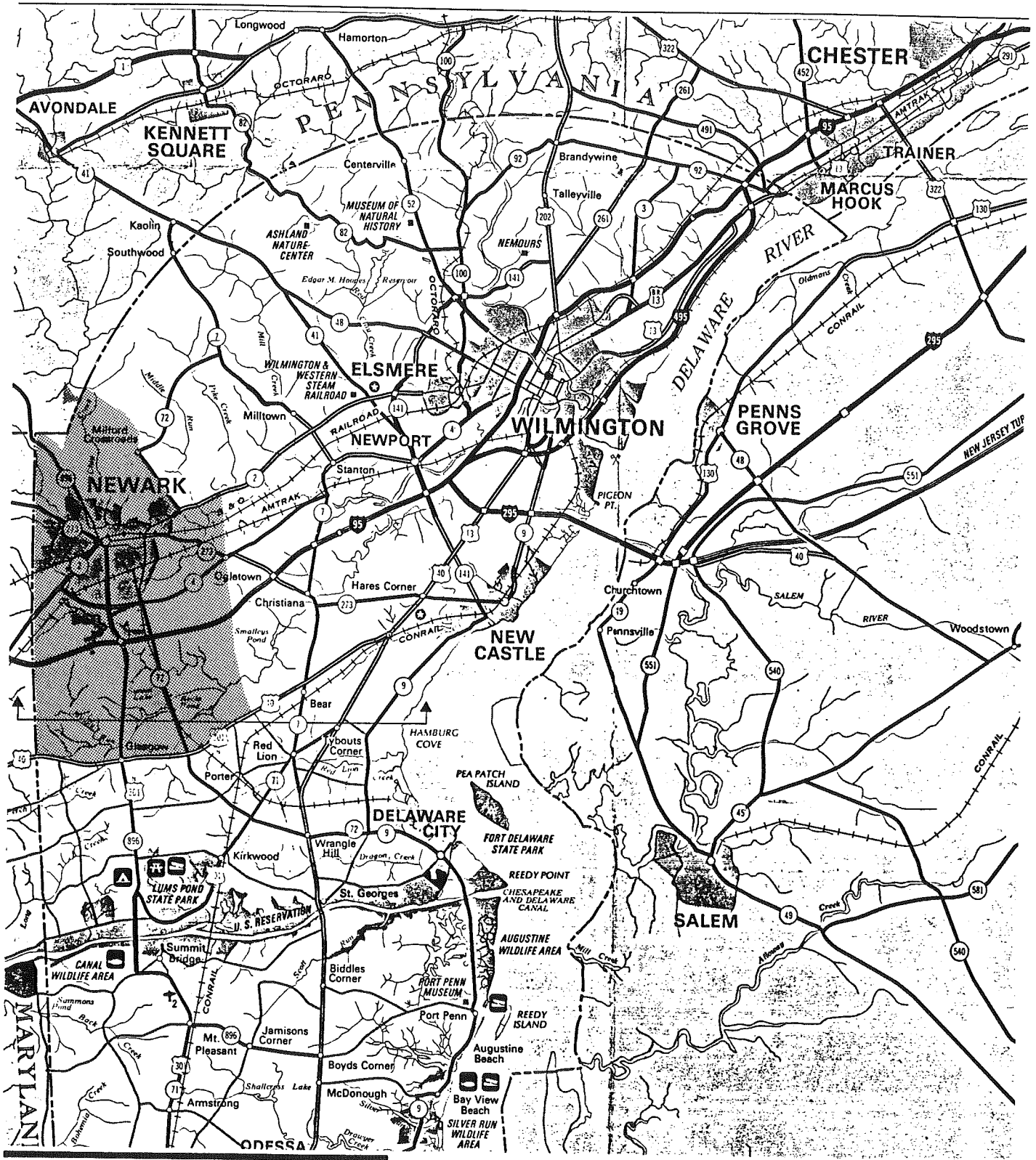
OVERVIEW

Newark, the second largest city in New Castle County, is growing at a rate several times faster than Wilmington. Current growth patterns in the Newark area threaten to increase congestion and delay on the existing roadway network, which until recently was considered mostly rural in character. The Delaware Department of Transportation, in recognition of these changing trends, commissioned Vanasse Hangen Brustlin, Inc. to conduct a systems analysis study of both short-term (Phase 1) and long-term (Phase 2) travel needs in the Newark area (see Figure 1) through the year 2010.

A large data collection effort was conducted which included turning movement and automatic traffic recorder counts, an origin-destination study, travel time runs, and other field observations. The Delaware Department of Transportation provided all traffic volume projections which were the basis for the long-term analysis. Evaluation criteria were established early in the process to set the stage for the analysis of both short and long-term improvements.

While the study focused on identifying roadway improvements, travel demand reduction strategies and transit issues were also addressed as part of the recommendations for both Phase 1 and Phase 2. Capacity increases without a strong commitment to reduce or limit growth in vehicle demand serves only to reduce the cost effectiveness of providing the new capacity.

The sections which follow highlight the study issues and recommended improvement plan for the Newark area.



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Study Area Location Map


LEGEND:
 Study Area

 Fig. 1

PROJECT ISSUES

As population and employment throughout the study area increase, so do traffic volumes. Average daily traffic on some of the study area corridors is expected to increase to two or three times their current level by 2010. Growth management will continue to be an important issue relative to population, employment, and traffic. As of 1985, undeveloped property accounted for approximately 62 percent of the land in the greater Newark area. As these parcels develop, traffic will likely increase even with growth management. The majority of the undeveloped parcels are located outside of the Central Business District (CBD). Development of this land creates new "mini-suburbs" requiring travel from one to the other contrary to the traditional suburb-to-CBD travel pattern.

In general, the existing roadway network is a radial pattern around the greater Newark area. There are, however, corridors such as I-95, U.S. Route 40, and others which skirt the City. There are no complete "ring-roads" around the City or north/south routes which do not pass through the City. The lack of a bypass system has created additional congestion in the CBD. In addition, Route 273 connects with Main Street in downtown Newark, thereby providing a direct route through the CBD for east/west through traffic. In future years, Cleveland Avenue, Main Street, and Delaware Avenue are likely to suffer from increasing congestion and safety problems resulting from these roadway network deficiencies.

Contributing to these problems are the following:

- Existing zoning regulations encourage high density but services such as local public transportation have not been fully developed to support the growth,

- The public transportation system currently focuses on regional routes (such as Newark to Wilmington), reducing potential ridership,
- Automobile use is particularly high because of low vehicle occupancy rates (about 1.3 persons per vehicle), and,
- Developers and major employers have not been officially required to mitigate traffic impacts through traditional or creative travel demand reduction techniques.

The goal of the study was to utilize the two-phase approach to identify both short-term (immediate-action) and long-term (year 2010) improvement recommendations which will address these issues and eliminate or reduce area deficiencies.

SHORT-TERM IMPROVEMENT PROGRAM

Several short-term improvement recommendations were made based on existing traffic conditions to address deficiencies identified during the early stages of the project. It is anticipated that three to five years would be necessary for implementation. These improvements included such items as traffic signal modification or installation, intersection improvements, minor roadway widening, and pavement marking improvements. The specific short-term recommendations are listed below:

1. Elkton Road (Route 2) and Ott's Chapel Road - Install a new traffic signal system. (This recommendation has been implemented by the Department).
2. Cleveland Avenue (Routes 2/273) and North Chapel Street/Curtis Mill Road - Modify the intersection geometry.
3. Curtis Mill Road (Route 72) and Station Road/Possum Park Road (Route 72) - Modify the intersection geometry and/or implement demand reduction strategies at the nearby DuPont Louviers complex.
4. Main Street (Routes 2/273) and South Chapel Street - Modify the current traffic signal phasing.
5. Elkton Road and Apple Street/Barksdale Road - Modify the existing traffic signals. (This recommendation has been implemented by the Department).
6. Cleveland Avenue and North College Avenue - Modify the traffic signals to accommodate pedestrians.

7. Main Street and College Avenue - Modify the traffic signal system or install a new signal, as needed, to accommodate pedestrians.
8. Route 40 and Pleasant Valley Road - Install a new traffic signal. (This recommendation has been implemented by the Department).
9. Old Baltimore Pike and Salem Church Road (northbound and southbound approaches) - Coordinate traffic signals on the two offset intersection approaches.
10. Old Baltimore Pike Corridor (Salem Church Road to Maryland State Line) - Improve pavement markings, install overhead signing, and investigate the creation of safe passing zones.
11. Delaware Avenue/Main Street/Cleveland Avenue (Route 72 to Elkton Road) - Evaluate the corridor intersections to identify the most effective traffic signal coordination scheme.
12. Elkton Road Corridor (Main Street to Ott's Chapel Road) - Investigate the feasibility of coordinating traffic signals along the corridor.

The total estimated cost of these projects is \$572,000.

Other non-roadway recommendations included re-examination of a previous report which evaluated toll collection issues on the Delaware Turnpike, preparation of a comprehensive signage program, and the initiation of a Transportation Management Association (TMA) for the Newark area.

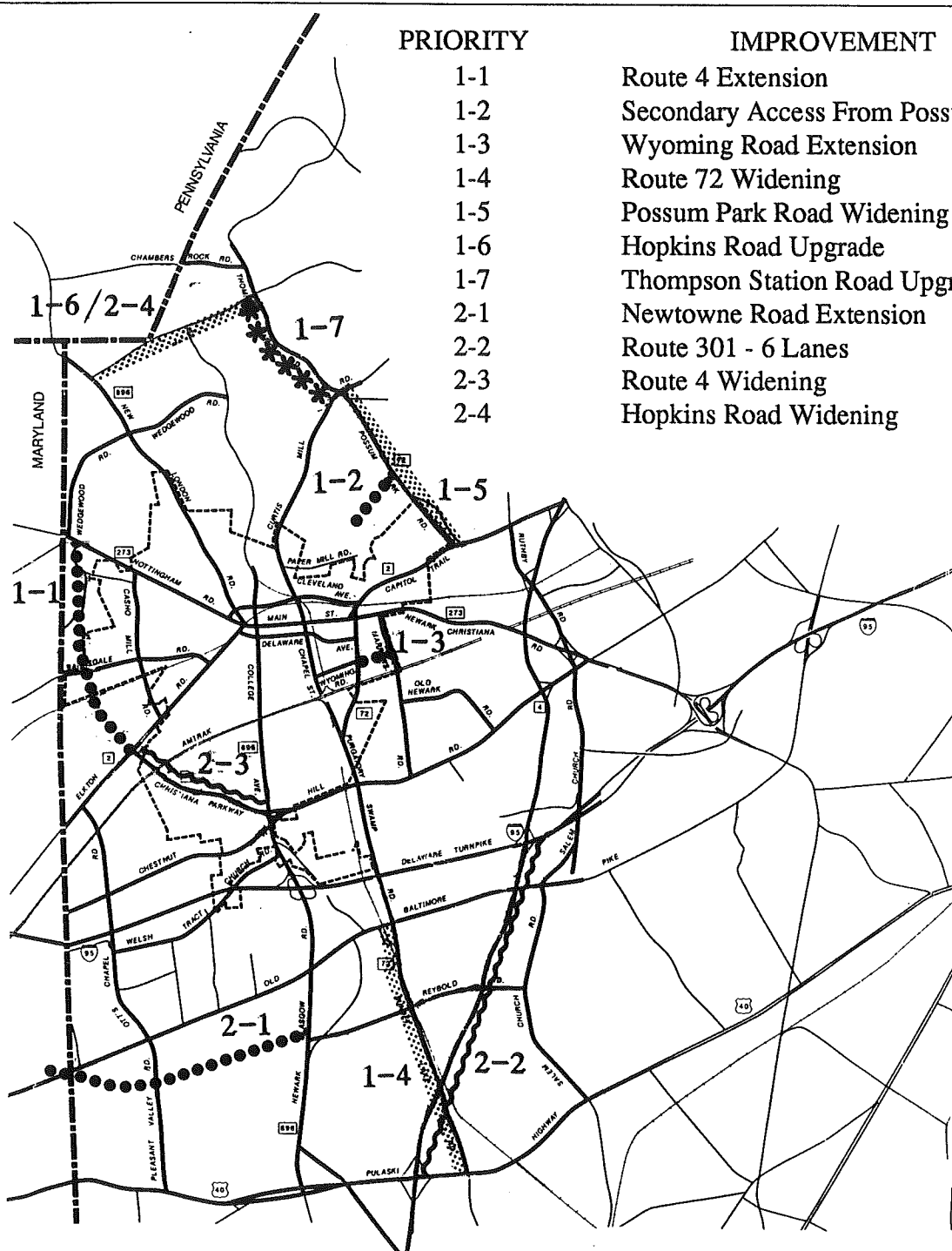
LONG-TERM IMPROVEMENT PROGRAM

Year 2010 traffic volume projections for some area roadways are expected to be double the existing daily traffic volume. It is also expected that one-third of the roadway miles studied will be deficient (Level-of-service D or worse). By 2010 much additional development will likely have occurred, creating a situation of intense traffic congestion, unless physical improvements and demand reduction strategies are implemented. Therefore, a number of alternative improvement strategies were evaluated. These alternatives included both roadway and non-roadway strategies. An evaluation process emphasizing traffic, safety, general engineering feasibility, broad environmental constraints, and community/neighborhood disruption was used to determine the long-term roadway recommendations. These recommendations were then prioritized into two groups based on the magnitude of the problem and benefit, availability of right-of-way, and cost. Figure 2 and Table 1 summarize the long-term recommendation program.

Costs were estimated for each of the recommendations based on calculations made for the Department as part of the Sussex County 2005 study. These data were updated to account for inflation (six percent per year) and represent 1988 dollars.

The roadway construction costs assume full depth pavement and two intersections per mile for all roadway types except the Route 301 freeway and Route 4 expressway. The final costs presented in Table 1 include basic engineering design and construction. They do not include bridge construction costs, interchanges, survey, construction engineering, or right-of-way.

The total cost for the 18 miles of roadway improvements is \$40,117,000. Close to 40 percent of the total cost is accounted for by the Route 301 improvement.



PRIORITY

IMPROVEMENT

- 1-1 Route 4 Extension
- 1-2 Secondary Access From Possum Park Road
- 1-3 Wyoming Road Extension
- 1-4 Route 72 Widening
- 1-5 Possum Park Road Widening
- 1-6 Hopkins Road Upgrade
- 1-7 Thompson Station Road Upgrade
- 2-1 Newtowne Road Extension
- 2-2 Route 301 - 6 Lanes
- 2-3 Route 4 Widening
- 2-4 Hopkins Road Widening

NOTE: Paths DO NOT Represent Actual Roadway Alignment OR Location.

**Proposed
Improvement
Program**

- LEGEND:**
- New Route
 - ▨▨▨ 4-Lane Widen
 - ~~~~~ 6-Lane Widen
 - *** Upgrade

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Not to Scale

 **Fig. 2**

TABLE 1
SUMMARY OF LONG-TERM IMPROVEMENT PROGRAM

| Improvement | No. of Lanes | Req'd. R.O.W. width | Divided/ Undivided (Shoulder/Curb) | Roadway Type | Length (Miles) | Cost per Linear Mile (Thousands) | Total Cost (Thousands) |
|------------------------------------------------------------------------------------------------------------------|--------------|---------------------|------------------------------------------|--------------|----------------|----------------------------------|------------------------|
| <u>Priority Group 1</u> | | | | | | | |
| 1-1 Route 4 Extension (Elkton Rd. to Nottingham Rd.) | 4 | 90' | Divided (S) | Expressway* | 2.75 | \$3,300 | \$9,075 |
| 1-2 Secondary Access from Possum Park Road | 2 | 74' | Undivided (S) | Local | 0.50 | \$1,900 | \$950 |
| 1-3 Route 72 - Widen to Four Lanes (Route 40 to Old Baltimore Pike) | 4 | 80' | Undivided (S) | Arterial | 1.51 | \$1,200 | \$1,812 |
| 1-4 Possum Park Road - Widen to Four Lanes | 4 | 86' | Undivided (C) | Arterial | 1.86 | \$1,300 | \$2,418 |
| 1-5 Wyoming Road Extension | 2 | 70' | Undivided (C) | Connector | 0.30 | \$2,000 | \$600 |
| 1-9 Hopkins Road Upgrade (provide standard 14' lanes 8' shoulders) | 2 | 70' | Undivided (S) | Collector | 1.76 | \$700 | \$1,232 |
| 1-10 Thompson Station Road Upgrade (provide standard 14' lanes; 8' shoulders) (Curtis Mill Road to Hopkins Road) | 2 | 70' | Undivided (S) | Collector | 1.28 | \$700 | \$896 |
| Subtotal | | | | | 9.96 | | \$16,983 |
| <u>Priority Group 2</u> | | | | | | | |
| 2-6 Route 4 - Widen to Six Lanes (Route 896 to Elkton Road) | 6 | 200' | Divided (S) | Expressway* | 1.43 | \$1,600 | \$2,288 |
| 2-7 Newtowne Road Extension | 2 | 60' | Undivided (S) | Connector | 1.50 | \$1,900 | \$2,850 |
| 2-8 Route 301 (Six Lanes) | 6 | 200' | Divided (S) | Freeway** | 3.45 | \$4,400 | \$15,180 |
| 2-9 Hopkins Road - Widen to Four Lanes | 4 | 70' | Undivided (C) | Arterial | 1.76 | \$1,600 | \$2,816 |
| Subtotal | | | | | 8.14 | | \$23,134 |
| Total | | | | | 18.10 | | \$40,117 |

* Expressway - Controlled access via interchanges or intersections.

** Freeway - Controlled access via interchanges only.

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The main emphasis of this project has been to evaluate and identify roadway improvements. This approach will provide additional roadway capacity and improve the geometry and safety. However, it will not ensure the preservation of roadway capacity. The recommendations presented below are designed to preserve capacity by improving driver awareness through clear signing, controlling growth through a unified zoning policy, and reducing peak hour traffic demand through a number of actions.

- Implement the Management Association (TMA) started in Phase 1.
- Conduct a comprehensive signing study.
- Identify and implement appropriate demand reduction requirements.
- Undertake parking management strategies in and around the central city.
- Work with transit operators to identify public transit strategies.
- Make zoning modifications.
- Propose and enforce curb cut limitations, and
- Establish a regional monitoring program.

Implementation of these non-roadway improvements as well as some of the Phase 1 TSM-type improvements should serve to reduce peak hour demand, thereby improving the projected 2010 levels of service (after improvements) and possibly even eliminating the need for improvement in certain areas. Monitoring of the area's development and traffic growth will determine the extent to which improvements will be necessary toward the end of the study period.