



# Transportation Plan Topsham, Maine



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# Topsham Transportation Study

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Special thanks also goes to all residents who attended the public meetings to give their valuable input. A list of residents who participated can be found with the meeting notes.

# Executive Summary

Gorrill-Palmer Consulting Engineers, Inc. has been retained by the Town of Topsham to complete a transportation planning study for the primary travel routes around and through the Town. A study area map is provided in Figure A of Appendix 1. The Town identified two main goals, or tasks for the study. Task 1 was to identify alternative means of access to the Topsham Fair Mall. Task 2 was to perform an analysis of the existing traffic network for the 5 year and 20 year study horizons in order to make recommendations on intersection improvements, road improvements, new construction, traffic calming measures, pedestrian bicycle access/safety, and new roadway infrastructure.

To initiate this project, a public meeting was held on June 21, 2004 allowing members of the community to identify the areas of transportation infrastructure concerns within the Town and to also suggest possible alternative means of access to the mall. The general consensus of the community was that congestion is high on Main Street (Route 201) creating safety issues for pedestrians and bicycles. In addition, the community expressed a desire to protect existing neighborhoods with the development of alternative access to the mall. The notes from this and several subsequent meetings are provided in Appendix 1.

## ***Task 1: Alternative Mall Access***

The first task of this study was to provide an analysis of potential alternative accesses to the Topsham Fair Mall. Currently, only one primary access to the mall exists, which is forecast to lead to congestion along the Route 196 corridor. There is a secondary access to Winter Street that recently opened, but is not expected to serve a significant amount of traffic. In addition, traffic growth in the area combined with traffic from previously permitted development at the Mall (Target Store) will result in increased congestion and creates a need for alternative mall access. The purpose of Task 1 was to identify measures to address forecasted congested operations along Route 196, identify the roadway and intersection improvements associated with these alternatives, and assess the impact of implementing the alternative access plans.

Based on the concerns and suggestions made by the Town staff and members of the community, Gorrill-Palmer Consulting Engineers, Inc. examined several alternative means of access as part of Task I. A total of nine alternatives were selected for further review. These alternatives are discussed in the executive summary for the Task 1 Report, included in Appendix 1. The results of the Task I analyses indicated that three of the nine alternative means of access could improve conditions within the area without adversely impacting surrounding neighborhoods. Those alternatives included:

- Alternative 1: Connector road from Monument Place to Topsham Fair Mall (This alternative would also require upgrading of the Monument Place intersection with Main Street and restriping of the northbound lanes at the intersection of Route 196 and Route 201 to include a single left-turn lane, a thru lane, and a thru/right-turn lane).
- Alternative 4: A connector road from Route 201 to Route 196 east of I-295 through the existing Crooker Property.
- Alternative 5: A connector road from Route 201 to Route 196 west of I-295.

Subsequent meetings with the committee and the public resulted in selection of Alternatives 1 and 5 as primary candidates for further consideration. Analyses show that if Alternative 1 were to be constructed, there would be sufficient capacity at critical intersections to accommodate an additional 450,000 square feet of development at the Mall over what is currently permitted. Alternative 5 would accommodate an additional 250,000 square feet of development at the Mall over what is currently permitted. By Town vote, Alternative 1, Monument Place Extension, was funded for construction.

As a result of Task 1, the Town has elected to proceed with the construction of a connector road from Monument Place to Topsham Fair Mall Road with connections to Hamilton Court and Mallett Drive. This would serve as a parallel access road to the mall. This alternative would also require upgrading the Monument Place/Main Street intersection and restriping the northbound lanes at the intersection of Route 196 and Route 201 to include a left turn lane, a thru lane, and a shared thru/right turn lane.

### ***Task 2: Town Wide Improvements***

Task 2 was to perform an analysis of the existing traffic network, using 5 year and 20 year projections to identify deficiencies and make recommendations for improvements to the traffic infrastructure. The June 21, 2004 meeting identified the section of Main Street in the Lower Village as a primary concern for the residents. The intersection of Route 196/Main Street and deficient pedestrian/bicycle facilities also presented concern for residents. Based on feedback from the Town, Transportation Committee, Council, Planning Board, and residents, Gorrill-Palmer Consulting Engineers Inc. developed a series of alternatives to address congestion and safety issues in the Town of Topsham. These alternatives were reduced to the most effective, practical measures and prioritized in a phasing plan as follows:

## **2009 Lower Village**

The 2009 Short Term Phase includes improvements in the Lower Village and to the Route 196 corridor to be made by 2009. The improvements in the Lower Village by year of completion include the following:

### ***2005-2006:***

- Make Thompson Lane one-way toward Green Street.

### ***2006-2007:***

- Reconstruct Elm Street Extension to allow two-way traffic and make Elm Street/Main Street intersection a true four-way intersection.
- Eliminate left turns from Main Street northbound onto Winter Street, moving left turns to the signal at Elm Street/Elm Street Extension. Make Winter Street Spur one-way towards Main Street from the entrance to the Picture Framer parking lot. Add parking spaces on the northern side on Winter Street Spur along the one-way section.
- Reinstate left turn from Rte 1 SB off-ramp onto Maine Street in Brunswick and signalize the intersection of Maine Street and the Rte 1 SB off-ramp. Prohibit right turns on red from ramp to provide gaps in traffic flow into Lower Village. Install a sign on Route 1 indicating that Route 201 can be accessed from the Coastal Connector.
- Add pedestrian crosswalk from the southern entrance of Bowdoin Mill across Main Street to the sidewalk leading to the Frank Wood Bridge.

### ***Ongoing:***

- Determine if warrants are met for a traffic signal at Bowdoin Mill and Summer Street. When met, add traffic light and left turn bays on Main Street at Summer Street and Bowdoin Mill. The signals will include pedestrian phasing. All improvements listed above should be constructed prior to installing a traffic signal at Summer Street and the Bowdoin Mill.
- Work with MaineDOT to redesignate Route 24 to run from Middlesex Road to Bypass Drive to Route 196 to Route 1 and reconnect with the existing Route 24 at Cook's Corner

## **2009 Upper Village**

Recommendations in the section of Topsham north of the Lower Village include the following:

### ***2005-2006:***

- Construct a connector road from Monument Place to Topsham Fair Mall Road (to be called Monument Place Extension) with connections to Hamilton Court and Mallett Drive. As part of this improvement, the

intersection of Monument Place with Route 196 will be realigned to opposite Union Park Drive and left turns out of Monument Place and Union Park Drive will be prohibited. The left turns into Monument Place and Union Park Drive from Route 196 should be monitored and prohibited if they raise a safety concern. In addition, improvements would be made to the intersection of Monument Place and Main Street including separate left and right turn lanes exiting Monument Place and extension of the northbound left turn lane from Main Street onto Monument Place. This intersection should be monitored for installation of a traffic signal to be coordinated with the signal at Route 196.

- Lengthen the northbound left turn lane on Main Street at Route 196. Redesignate the center left turn lane as a through lane.
- Modify the median on Route 196 to allow for a longer left turn pocket for traffic heading north on Route 201. Monitor for a possible second left turn lane (eastbound) on Route 196 for traffic heading north on Route 201.
- Stripe lane markings through the intersection of Route 196/Main Street for the left turn from Main Street northbound onto Route 196 westbound.
- Extend the yellow clearance times to four seconds at the intersection of Route 196/Topsham Fair Mall Road.
- Install an advance warning sign of the Route 196/Bypass Drive intersection on Route 196 approximately 0.3 miles south of the intersection on the existing overhead sign structure or immediately north of it. Extend yellow clearance time on the Route 196 approaches to this intersection to four seconds.
- Reduce turning radius for right-turning vehicles on the Bypass Drive approach to the intersection with Route 24.

#### **2006-2007:**

- Improve pedestrian crossing safety at the Route 196/Route 201 intersection with improvements such as count down signals and/or illuminated “No Turn on Red” signs that are activated when the ped buttons are pushed.
- Construct necessary improvements on Main Street, in the vicinity of the new Town Office and Public Safety site (planned for the southwest corner of Main Street/Monument Place).

#### **2007:**

- Accept CanAm Drive from Republic Drive to Mountain Road as a public way. Open the gate at the end of CanAm Drive.
- Make Eagles Way one-way towards Mt. Ararat High School and improve the connection from Eagles Way to CanAm Drive.
- Signalize the intersection of CanAm Drive and Main Street.

### **2008-2009:**

- Widen Route 196 (Coastal Connector) to four lanes from Bypass Drive to Main Street.

### **2024 Improvements**

The 2024 Phased improvements focus mainly on the section of Topsham north of the Lower Village surrounding the Topsham Fair Mall and the I-295 ramps. Each of these phases assumes completion of the 2009 improvements and all previous phases. The phasing has been established to provide the best apparent benefit/cost ratio relative to traffic flow. The intent would be to begin addressing these improvements as soon as possible and using this framework as a planning tool with future development. For example, the eastern and western Route 201/Route 196 connectors could be constructed with private funds as their surrounding land areas are developed. Other work, such as widening the Route 196 overpass over I-295 would likely require a combination of private and public funding. Phase 1A through Phase 2B are the most likely to be implemented based on traffic forecast for potential development. Recommendations in Phases 3A through 3C should be revisited in the future as actual development patterns emerge. Funding for these phases may include private developers, traffic impact fees for development, tax revenues generated within the Municipal Tax Increment Financing (TIF) District, and funding from the Maine Department of Transportation.

### **Phase 1A**

The 2024 Phase 1A includes the following improvements:

- Construct a connector road extending from Route 201 to Route 196 west of I-295 (referred to as the Rte 201/196 Western Connector)
- Construct a connector road extending from Route 196 to River Road thru the proposed commercial development west of I-295 (referred to as the Rte196/River Rd Connector).
- Signalize the intersection of Route 196 and the Route 201/196 Western Connector. Expand Route 196 to four lanes west of I-295 with raised medians within 1,000 feet of signals.
- Signalize the intersection of Route 196 and the I-295 SB Ramps
- Provide separate left and right turn lanes exiting Mallett Drive onto Route 196.
- Signalize intersection of Meadow Cross Road/Route 196 (This signal may be placed at a different location, but should be placed to mitigate the impacts of residential development along Route 196 west of I-295. The signal could be placed at any intersection west of I-295 if a more appropriate location is identified.)

See Figure 5 of Appendix 3

### **2024 Phase 1B**

Phase 1B proposes to construct a connector road extending from Route 201 thru the Crooker Property to Route 196 opposite the Topsham Fair Mall Road (referred to as the Rte 201/196 Eastern Connector). This connector road would be constructed if and when Harry C. Crooker & Sons relocates, and as development occurs on the site. See Figure 6 of Appendix 3.

### **2024 Phase 2A**

The 2024 Phase 2A improvements propose to expand Route 196 westbound to three thru lanes from the intersection with Topsham Fair Mall Road to the I-295 SB on-ramp. The westbound Rte 196 approach at Topsham Fair Mall Road would contain two left-turn lanes, three thru lanes and a right turn lane. The westbound Rte 196 approach at the I-295 NB ramps would contain two thru lanes and a shared thru/right turn lane. The Rte 196 overpass over I-295 would need to be expanded to contain three westbound thru lanes over the bridge. The inner-most thru lane would become a left-turn lane onto the I-295 SB on-ramp on the west side of the bridge. See Figure 7 of Appendix 3.

### **2024 Phase 2B**

The 2024 Phase 2B improvements propose a connector road from Topsham Fair Mall Road to the proposed commercial development on the western side of I-295 (referred to as the Commercial Connector). See Figure 8 of Appendix 3.

### **2024 Phase 3A**

Proposed for 2024 Phase 3A is a southbound on-ramp to I-295 from the Commercial Connector. See Figure 9 of Appendix 3.

### **2024 Phase 3B**

The 2024 Phase 3B improvements include the following improvements to the I-295 ramps:

- Construct a northbound on-ramp from Main Street (Route 201) opposite the Rte 201/196 Eastern Connector to I-295.
- Close existing I-295 NB on-ramp from Route 196.
- Construct I-295 SB off-ramp to Main Street (Route 201) opposite the Rte 201/196 Western Connector.

- Close the existing I-295 SB off-ramp to Route 196 westbound. The I-295 SB off-ramp to Route 196 eastbound would remain open.

See Figure 10 of Appendix 3.

### **2024 Phase 3C**

The 2024 Phase 3C improvements would be construction of an I-295 northbound off-ramp to the Topsham Fair Mall Road. See Figure 11 of Appendix 3.

### **Pedestrian & Bicycle Facilities**

Gorrill-Palmer Consulting Engineers Inc. examined the pedestrian and bicycle facilities in the Town and makes the following recommendations:

- Provide pedestrian signals at the crosswalk on the southern leg of the Main Street/Elm Street/Elm Street Extension intersection.
- Install pedestrian crossing with actuated signals on the southern leg of the Topsham Fair Mall Road/Hannaford intersection.
- Construct a sidewalk on the western side of Main Street from Route 196 to Wilson Street with a crosswalk at the intersections of Wilson Street allowing pedestrians to cross to the eastern sidewalk to access the Lower Village.
- The Town should study locations for a potential multi-use path along the river extending from River Road to the proposed Water Front Park east of the Lower Village.
- Consider a pedestrian actuated flasher across Main Street in the Lower Village at the crosswalk north of Summer Street.
- Install sidewalks or an off road trail on the southern side of Route 196 from Community Way to Main Street.
- Implement the bike path plan that has already been approved by the Board of Selectmen.
- Develop a Pedestrian and Bicycle Committee to perform regular reviews of pedestrian and bicycle facilities and make recommendations for improvements.
- Develop a Traffic Committee to provide ongoing monitoring of traffic conditions in Topsham. This committee should work with the Pedestrian and Bicycle Committee to make the Town more pedestrian and bicycle friendly.

### **Ongoing**

- Continue to evaluate the Black Bridge for the possibility of making traffic flow one-way, and in which direction traffic should travel over the bridge. One-way traffic flow on the Black Bridge from Brunswick into Topsham

appears the most favorable option as it provides more safety benefits than the alternative route, and results in right turn movements for redirected traffic rather than left turns such as would occur at Summer/Main.

- At the time traffic counts were collected at the Winter Street access to the Topsham Fair Mall, this access had only recently been constructed and may have been underutilized. Since this time, use of the Winter Street access has increased. Construction of the Monument Place Extension is anticipated to decrease volumes on the Winter Street access. However, the Winter Street access should be monitored for capacity as drivers become more aware of the access.
- Monitor traffic on Green Street and evaluate the possibility of making Green Street one-way or closing the connection of Green Street to either Main Street or Elm Street.

# Chapter 1

## Introduction

### Project Background

The Town of Topsham is located at the convergence of several major roadways, including Interstate 295, US Route 1, US Route 201, and State Route 196, and is developing into a regional shopping hub. These elements have combined to transform what was once primarily a quiet residential community into a busy transportation crossroad and center of commerce. The Town has always felt the impact of commuter pass-through traffic associated with Bath Iron Works to the east and Brunswick to the south, but two significant factors have combined to alter the transportation system in Topsham. The first was the construction of the Coastal Connector (Route 196) to Route 1 in Brunswick. This new roadway helped to reduce traffic on Main Street from Route 1 to Route 196, but also serves as a new east-west connection between Route 1 and I-295, which has increased traffic along the Route 196 corridor. The second significant event is the emergence of the Topsham Fair Mall into a regional shopping center. What was once a local shopping center primarily serving the Town's residents is becoming a regional hub as the largely undeveloped area adjacent to I-295 is now partially occupied by a Home Depot and a new shopping center anchored by a Target Store, which is under construction and scheduled for a March 2006 opening date. These projects have further encouraged the emergence of smaller retail uses on previously vacant lots at the Mall as well as new lots associated with the Mall expansion. The Coastal Connector has also opened large tracts of land to development east of Main Street and has already seen significant residential development. There is also potential for significant commercial and residential development west of I-295 along Route 196. Retail, commercial and residential development, coupled with steadily rising tourist traffic have and will continue to increase pressure on the Town's transportation infrastructure, particularly along the Route 196 corridor.

In recognizing the significant impact that the transportation system will have on the Town's continued economic vitality and quality of life, the Town has retained Gorrill-Palmer Consulting Engineers, Inc. to complete a transportation study that will quantify current traffic conditions, identify desire lines of traffic throughout the Town, and propose capital investments to assure that the Town will have a safe and efficient transportation system in the future.

The Town identified two main goals of the study and divided the project into two tasks. The Town's immediate priority, Task 1, was to identify alternative means of access to the Topsham Fair Mall. There is currently one primary means of access, which comes from Route 196. This intersection is projected to operate at

nearly full capacity during peak periods based on studies completed for the development of the Home Depot and Target Store. In fact, to achieve acceptable operations, significant traffic improvements were completed for these projects to go forward, and there is little opportunity for further capacity improvements at the Route 196 intersection. The extension of Topsham Fair Mall Road to Winter Street has been completed and is anticipated to relieve some of the pressure on the Route 196 intersection, but is not intended to be a long-term solution given the local residential nature of Winter Street. The intersection of Main Street at Route 196 has also been identified as a congestion point in the Town, and was addressed as part of the alternative means of access to the Mall.

In addition, the Town would like to develop a transportation plan for improvements to be made to the existing traffic network in order to ensure efficient and safe traffic operations in the future, Task 2. This task involves forecasting of future development and growth in the area, identifying desired routes of travel, developing alternative means of access for major destinations in the Town and surrounding communities, developing a plan for improvements to the existing transportation network, and developing a plan for implementing the proposed improvements. This planning effort also needs to include provisions for alternative means of transportation such as bicycles and pedestrians.

### **Study Area**

The transportation study encompasses the major thoroughfares through Topsham including Main Street from the Frank Wood Bridge to the I-295 overpass and Route 196 from Merrymeeting Bridge to White House Crossing Road. Minor roadways are also considered as they may be affected by the recommendations of the study. These streets include portions of Winter Street, Summer Street, Wilson Street, Monument Place, Mallett Drive, Green Street, Eagles Way, CanAm Drive and Hamilton Court. The study area is shown on Figure A of Appendix 1.

The study area for Task 1 of the project was limited to the following intersections:

- Route 196/ I-295 NB Ramps
- Route 196/Topsham Fair Mall Road
- Route 196/Mallett Drive
- Route 196/Hamilton Court
- Route 196/Main Street
- Main Street/Monument Place
- Topsham Fair Mall Road/Hannaford Drive
- Topsham Fair Mall Road/Winner's Circle/Arby's Drive

## Project Goals

The intent of this study is to develop a transportation plan to accommodate the future commercial and residential growth in the Town while preserving mobility, safety, and the character of the Lower Village, and balancing the needs of vehicles, pedestrians and bicyclists. Commercial development includes retail, restaurants, office space, etc. This study examines the Town of Topsham from a global perspective, rather than on a project by project basis. The plan developed is to be used to commence the funding mechanism through the MaineDOT and preserve rights-of-way for future roadways and improvements.

It was important to develop a set of guiding principles to serve as a benchmark by which to evaluate the effectiveness and impact of various improvement plans. To initiate this project, a public meeting was held on June 21, 2004 allowing members of the community to identify the areas of concern within the Town. The general consensus of the community was that congestion on Main Street is high and creates safety issues for pedestrians and bicyclists. Speeds are also a concern on residential streets, particularly Green Street, Winter Street, and Main Street north of Elm Street. In addition, the community expressed concern for protecting existing neighborhoods with alternative access plans for the Topsham Fair Mall. Additionally, it is important to identify potential connector roadways and preserve mobility on future and existing roadways, such as the Coastal Connector. An overriding goal is to develop a plan that allows for economic growth and development in the Town, while preserving mobility for vehicles, bicycles, and pedestrians. A copy of the meeting notes is contained in Appendix 1.

## Chapter 2

# Existing Conditions

The focus of Task 1 was the Route 196 corridor from Main Street to Topsham Fair Mall Road and the secondary Mall access via Winter Street. Task 2 focuses on improvements to the area surrounding Main Street south of Route 196, referred to as the Lower Village, as well as Route 196 (Coastal Connector) and other local roadways throughout the Town.

### Roadways

Route 196 in the vicinity of the Topsham Fair Mall is a median divided facility with two through lanes and a bike lane in each direction. The roadway widens at the signalized intersections with Main Street, Hamilton Court, Mallett Drive, and Topsham Fair Mall Road to provide various combinations of left turn lanes and right turn lanes. The stretch of Route 196 known as the Coastal Connector extends from Route 1 to the intersection with Main Street and provides an east-west connector between Route 1 and I-295. The Coastal Connector is a two-lane roadway with a speed limit of 55 mph. Route 196 west of the Main Street/Coastal Connector intersection is a four-lane roadway with a speed limit of 35 mph.

Main Street in the Lower Village is a recently reconstructed two-lane roadway with four foot shoulders that can serve bicycles and a speed limit of 25 mph. There are sidewalks on each side of Main Street in the Lower Village. The absence of turning lanes on Main Street and the high volume of thru traffic often cause congestion and extensive queuing during the evening peak of commuter traffic, especially during the summer months when tourist traffic in the area is increased. Main Street north of Route 196 is a wide, two-lane roadway with a speed limit of 30 mph (increases to 50 mph south of I-295 overpass) and generally has 10 ft wide paved shoulders, suitable for bikes. South of CanAm Drive, the eastern shoulder was reduced to 5 ft when the sidewalk was constructed down to Route 196.

Winter Street is a collector roadway through a residential area with one lane in each direction, no shoulders, and a sidewalk on the southern side from Main Street to Elm Street Extension and on the northern side from Elm Street Extension to Topsham Fair Mall Road. There are single lanes on each approach at the new intersection with Topsham Fair Mall Road.

Elm Street (Route 24) is a collector roadway through a residential area with one lane in each direction. Sidewalks along Elm Street exist from Foreside Road to Main Street, however, the sidewalk narrows extensively under the railroad

underpass west of the Route 196 underpass. Elm Street provides a connection from Route 196/Coastal Connector to the Lower Village.

Mallett Drive is a local, residential roadway with a speed limit of 25 mph. It is often used as a cut-through route for traffic traveling between Route 196 and Winter Street. It contains a single lane in each direction with no sidewalks on either side of the street.

Topsham Fair Mall Road extends from Route 196 to Winter Street east of I-295 and provides access to the businesses in and around the Topsham Fair Mall. It contains two travel lanes in each direction from Route 196 to the southern Hannaford driveway with turning lanes at each driveway. It has one travel lane northbound and two southbound from Hannaford to the proposed entrance to Target, and a single travel lane in each direction from there to Winter Street.

### **Intersections**

Currently, the Route 196 entrance to the Topsham Fair Mall is the primary access to the Mall. With the development of a Home Depot and a planned Target Store, as well as several smaller retail developments, this intersection operates at nearly full capacity. Significant traffic improvements were completed at the Route 196 access to go forward with the Home Depot and Target Store projects, and there is little opportunity for further capacity improvements at this intersection. No pedestrian crossings are provided at this intersection, since the sidewalks are located along the southern side of the eastern leg and the eastern side of the southern leg.

The Route 196 intersection with Main Street was constructed when the Coastal Connector was extended across the Androscoggin River. This signalized intersection serves most of the traffic travelling in and through Topsham and currently experiences congestion during peak periods. Pedestrian signals are provided across the south and east legs of the intersection.

The intersection of Main Street, Elm Street, and Elm Street Extension is a signalized intersection. Although left turn bays exist at this intersection, the majority of left turns from Main Street northbound occur at Winter Street to the south, where turning lanes are absent. Vehicles waiting to turn left at this location often create extensive queues. Currently, Elm Street Extension is one-way westbound and only a right turn is allowed from Winter Street onto Main Street. Therefore, there is no way to make a left hand turn from Winter Street onto Main Street from this intersection. This traffic will typically travel through the neighborhoods and utilize Wilson Street to make the left turn onto Main Street. Crosswalks are provided on the eastern and southern legs of the Elm

Street intersection. However, a pedestrian signal is provided only on the eastern leg.

The intersection of Main Street and Summer Street/Bowdoin Mill is an unsignalized intersection with free-flow on Main Street. Due to the high volumes of thru traffic on Main Street, it is often difficult to make a left hand turn out of Summer Street and the Bowdoin Mill. In addition, Main Street is a single lane approach in each direction. Therefore, vehicles waiting to make a left turn from Main Street onto Summer Street or the Bowdoin Mill often create extensive queuing. Pedestrian crosswalks are located on the northern and eastern legs of this intersection.

The intersection of Route 196 with Hamilton Court is a signalized intersection and is coordinated with surrounding signals on the Route 196 corridor. The Hamilton Court approach currently serves as a driveway to the Irving, Dunkin Donuts, Subway, and credit union that are located along the street. The proximity of the Irving driveway to the intersection with Route 196 often causes traffic to back up onto the Irving site, especially during the morning and afternoon peak hours. A pedestrian crosswalk with a pedestrian actuated signal is provided on the southern leg of this intersection.

The intersection of Main Street and CanAm Drive has a flashing beacon and contains a single lane on the CanAm Drive approach. CanAm Drive serves Mt. Ararat Middle School as well as the Navy Annex. Traffic is heavy exiting CanAm Drive during the morning peak hour and the majority of the traffic turns left onto Main Street. This causes extensive queueing on CanAm Drive and traps right-turning vehicles behind vehicles waiting to turn left. Main Street southbound has a left turn bypass lane and Main Street northbound has a right turn lane.

The intersection of Main Street and Eagles Way is currently unsignalized and has separate left and right turn exit lanes for a short distance on the Eagles Way approach. Eagles Way serves Mt. Ararat High School. Traffic is heavy exiting Eagles Way during the morning and afternoon peak hours and the majority of the traffic turns left onto Main Street.

### **Collision History**

Gorrill-Palmer Consulting Engineers, Inc. obtained the crash data from MaineDOT for the period of 2001-2003, the most recent period available. In order to evaluate whether a location has a crash problem, MaineDOT uses two criteria to define High Crash Locations (HCL). Both criteria must be met in order to be classified as an HCL.

1. A critical rate factor of 1.00 or more for a three-year period. (A Critical Rate Factor {CRF} compares the actual crash rate to the rate for similar intersection in the state. A CRF of less than 1.00 indicates a rate of less than average) and:
2. A minimum of 8 crashes over a three-year period.

The following table summarizes the crash data provided by MaineDOT for all high crash locations in the study area:

**Table 2.1: MaineDOT Crash Data for 2001-2003: Intersections**

<b>Node</b>	<b>Intersection</b>	<b># of Collisions</b>	<b>CRF</b>	<b>HCL?</b>
5203	Main Street (NB) at Route 196	21	1.14	Yes
10024	Main Street (SB) at Route 196	8	1.02	Yes
7277	Route 196 at Topsham Fair Mall Road	27	0.87	No
10008	Route 196 at Hamilton Court	13	1.31	Yes
7456	Route 196 at Bypass Drive	10	1.05	Yes
7459	Route 24 at Bypass Drive	8	2.68	Yes

**Table 2.2: MaineDOT Crash Data for 2001-2003: Road Segments**

<b>Nodes</b>	<b>Street</b>	<b>From</b>	<b>To</b>	<b># of Collisions</b>	<b>CRF</b>	<b>HCL?</b>
1427-7277	Route 196	Topsham Fair Mall	Mallett Drive	10	1.28	Yes

As shown in the tables above, there are six high crash locations within the study area when the Main Street/Route 196 locations are combined. Gorrill-Palmer Consulting Engineers Inc. has prepared collision diagrams for each of the high crash locations, as well as the intersection of Route 196 and Topsham Fair Mall Road. Each location is discussed in the following paragraphs.

#### *Main Street at Route 196*

This intersection was reported to have experienced 29 collisions from 2001 to 2003. Upon review of the collision reports, 31 collisions were actually found to have occurred at this location. Of these collisions, four were side-swipe collisions occurring when a vehicle making a left turn from Main Street northbound onto Route 196 westbound collided with a vehicle making the same maneuver. These collisions could be reduced by striping lane marking through the intersection. In addition, three rear-end collisions occurred on Route 196 eastbound, three occurred on Route 196 westbound, and nine occurred on Main Street southbound. Of the remaining collisions, four involved a vehicle headed north on Main Street failing to stop for a red light and two occurred when a vehicle headed west on Route 196 failed to yield to the signal. The clearance interval was investigated to determine if it was a contributing factor to the rear-end

crashes, and was found to be adequate (4 seconds yellow, 2 seconds all-red). Therefore, no further mitigation is recommended. The remaining collisions were random in nature and do not indicate a collision pattern.

#### *Route 196 at Topsham Fair Mall Road*

Upon review of the collision reports for this intersection, six collisions were found to have actually occurred at the intersection of Route 196 and Main Street. Of the 21 remaining collisions that actually occurred at this location, four were rear-end collisions on Route 196 westbound, seven were rear-end collisions on Route 196 eastbound, and three were rear-end collisions on Topsham Fair Mall Road. These collisions could be reduced by installing flashing strobes on the red indication signal head on the Route 196 eastbound approach where the grade and proximity of the I-295 ramps may contribute to collisions. The remaining seven collisions at this intersection occurred when a driver failed to yield or stop at the red light. The majority of these collisions occurred between 12 PM and 3 PM on a weekday. The clearance interval at this intersection is currently 3 seconds of yellow and 2 seconds of red time. Our office recommends the yellow time be extended to 4 seconds to reduce red-light running.

#### *Route 196 at Hamilton Court*

Of the thirteen collisions occurring at this location, five were rear-end collisions and one was a side-swipe on Route 196 eastbound. Five of these collisions occurred between 6:00 and 7:45 AM when the sun obscured the vision of the drivers. The signal heads currently have 4-inch back plates to block the sun. In addition, the clearance interval appears adequate. Installation of flashing strobe lights on the red signal indications for eastbound traffic may reduce these collisions. The remaining collisions do not indicate a particular collision pattern correctable by engineering measures.

#### *Route 196 at Bypass Drive*

Of the ten collisions occurring at this location, four were rear-end collisions on Route 196 northbound, one was a rear-end collision on Route 196 southbound, and two were rear-end collisions on Bypass Drive. The high speed of vehicles exiting Route 1 onto Route 196 likely contributes to the occurrence of rear-end collisions on the northbound approach. An advance warning sign is currently located less than 1,000 ft from the intersection on the northbound approach. Our office recommends installation of an advance warning sign approximately 0.3 miles from the intersection on the existing overhead sign structure or immediately north of it. The clearance interval on Route 196 is currently 3 seconds of yellow and 2 seconds of red time. The clearance interval on Bypass Drive is currently 3 seconds of yellow and 2 seconds of red time. Our office

recommends extending the clearance intervals to 4 seconds of yellow and 2 seconds of red time for the Route 196 approaches. The remaining collisions do not indicate a particular collision pattern.

Red-light-running is a problem at several intersections along Route 196. This may be in part due to the high speed limit on the Coastal Connector, which leads drivers to speed up for a yellow light rather than slowing down to stop. Reducing the speed limit on the Coastal Connector may reduce the occurrence of red-light-running.

#### *Route 24 at Bypass Drive*

Of the eight collisions that occurred at this location from 2001 to 2003, four were rear-end collisions on Bypass Drive that occurred when a vehicle waiting to make a right hand turn onto Route 24 was struck by a following vehicle. Bypass Drive is currently very wide with a large turning radius. This causes drivers to pull very far ahead before yielding to oncoming traffic. Often the following vehicle does not expect the driver to stop and will be looking to the left for oncoming vehicles when they collide with the vehicle in front of them. Reduction of the turning radius on this approach could reduce such collisions. Three of the remaining collisions occurred when a vehicle making a left turn from Bypass Drive onto Route 24 failed to yield to southbound Route 24 traffic. Our office examined the sight distances exiting Bypass Drive and found that they are adequate. However, Bypass Drive is very close to several driveways and Tedford Road. Vehicles exiting from these locations onto Route 24 southbound would be difficult for a driver to see from Bypass Drive.

#### *Route 196 from Topsham Fair Mall Road to Mallett Drive*

Of the ten collisions occurring along this section of Route 196, four were rear-end collisions in the vicinity of Mallett Drive. These collisions were likely related to the signal at the Mallett Drive intersection. This could be addressed by improving the coordination of the signal at Mallet Drive and Topsham Fair Mall Road to improve traffic flow between these intersections. In addition, four collisions occurred at the Gibb's driveway. The remaining collisions do not indicate a collision pattern correctable by engineering measures.

### **Traffic Data Collection Program**

Gorrill-Palmer Consulting Engineers, Inc. collected extensive data within the study area during the summer months, when traffic volumes reach a peak due to heavy tourist traffic.

Gorrill-Palmer Consulting Engineers, Inc. collected automatic traffic recorder (ATR) counts at twenty-nine locations throughout Topsham. ATR counts were performed at the following locations from Monday, July 26, 2004 to Wednesday, July 28, 2004:

- Main Street north of Summer Street/Bowdoin Mill
- Main Street north of Elm Street/Elm Street Extension
- Main Street south of Monument Place
- Main Street north of Monument Place
- Main Street north of Route 196
- Winter Street west of Main Street
- Elm Street east of Main Street
- Elm Street Extension west of Main Street
- Monument Place west of Main Street
- Route 196 south of Bypass Drive
- Route 196 north of Bypass Drive
- Bypass Drive east of Route 196
- Route 196 east of Main Street
- Route 196 east of Hamilton Court
- Route 196 east of Mallett Drive
- Route 196 east of I-295 SB Ramps
- Topsham Fair Mall Road south of Route 196
- Winter Street west of Topsham Fair Mall Road

In addition, ATR counts were collected at the following locations from Monday, July 26 to Monday, August 2, 2004:

- Main Street south of Summer Street/Bowdoin Mill
- Main Street north of CanAm Drive
- Route 196 east of Main Street
- Route 196 west of Main Street
- Route 196 east of Topsham Fair Mall Road
- Route 196 west of I-295 NB Ramps

Due to the heavy amount of traffic associated with Mount Ararat High School in the vicinity of Eagles Way, ATR counts were collected from Wednesday, September 15 to Friday, September 17, 2004, while school was in session at the following locations:

- Main Street south of Eagles Way
- Main Street north of Eagles Way
- Eagles Way east of Main Street
- CanAm Drive east of Main Street

Gorrill-Palmer Consulting Engineers, Inc. utilized adjustment factors provided by MaineDOT to calculate the annual average daily traffic (AADT) for all locations where ATR counts were collected. The AADT volumes for all locations are shown on Figure 2 of Appendix 2.

Turning movement counts were collected on Tuesday, July 27, 2004 from 7:00 to 9:00 AM and from 3:00 to 6:00 PM at the following locations:

- Main Street at Summer Street and Bowdoin Mill
- Main Street at Winter Street and Thompson's Lane
- Main Street at Elm Street and Elm Street Extension
- Main Street at Monument Place
- Main Street at Route 196
- Main Street at Eagles Way
- Main Street at CanAm Drive
- Route 196 at Bypass Drive
- Route 196 at Hamilton Court
- Route 196 at Mallet Drive
- Route 196 at Topsham Fair Mall
- Topsham Fair Mall Road at Winner's Circle
- Topsham Fair Mall Road at Hannaford and Tire Warehouse

Turning movement volumes were also collected on Thursday, July 29, 2004 at the following locations:

- Route 196 at I-295 SB Ramps
- Route 196 at I-295 NB Ramps
- Topsham Fair Mall Road at Winter Street

Mount Ararat High School is located on Eagles Way, which creates a significant amount of traffic during the AM and PM peak hours while school is in session. Therefore, turning movement volumes were collected on Thursday, September 16, 2004 at the following intersections:

- Main Street at Eagles Way
- Main Street at CanAm Drive

Based on the turning movement counts, the AM peak hour of traffic in the Town of Topsham occurs between 7:15 and 8:15 AM, and the PM peak hour of traffic occurs between 4:00 and 5:00 PM. The raw turning movement volumes for the AM and PM peak hours are shown on Figures 3 and 4, respectively, of Appendix 2. The ATR counts in the area revealed that the traffic volumes in the Town on Thursday were approximately 3% higher than the traffic volumes on Tuesday. Therefore, Gorrill-Palmer Consulting Engineers, Inc. increased the turning

movement volumes collected on Tuesday by 3% to reflect peak traffic volumes. The adjusted and balanced turning movement volumes are shown on Figures 5 and 6 of Appendix 2 for the AM and PM peak hours, respectively.

### **Origin Destination Study**

Gorrill-Palmer Consulting Engineers, Inc. completed an origin-destination study in order to determine desire lines of traffic through the Town. A license plate survey was completed on Thursday, July 29, 2004 from 6:00 to 9:00 AM and from 3:00 to 6:00 PM at the following locations:

- Main Street northbound south of Summer Street
- Main Street southbound north of Summer Street
- Elm Street westbound east of Main Street
- Main Street southbound north of CanAm Drive
- Route 1 NB Off-ramp to Route 196/Coastal Connector
- Route 196 westbound east of Main Street
- Route 196 westbound left turn onto Hamilton Court
- Route 196 westbound left turn onto Mallett Drive
- Mallett Drive northbound left turn onto Route 196 westbound
- Route 196 westbound left turn into Topsham Fair Mall
- Topsham Fair Mall Road northbound right turn onto Route 196 eastbound
- Route 196 westbound right turn onto I-295 NB on-ramp
- I-295 NB off-ramp right turn onto Route 196 eastbound
- Route 196 westbound left turn onto I-295 SB on-ramp
- I-295 SB off-ramp right turn onto Route 196 eastbound
- Winter Street westbound right turn onto Topsham Fair Mall Road
- Winter Street eastbound left turn onto Topsham Fair Mall Road
- Topsham Fair Mall Road southbound right turn onto Winter Street
- Topsham Fair Mall Road southbound left turn onto Winter Street

The locations of the license plate surveys are shown on Figure 1 of Appendix 2. The following table summarizes the results of the origin-destination study for the major routes thru the Town. The results for all locations are shown in Tables 1 and 2 of Appendix 2 for the AM and PM peak hours, respectively.

**Table 2.3: PM Peak Hour – Origin and Destination Matrix**

<b>Starting at:</b>	<b>Main Street SB @ I-295 overpass</b>	<b>Route 196 WB (Coastal Connector)</b>	<b>Main Street NB s/o Summer Street</b>	<b>Elm Street WB e/o Main Street</b>
<b>Ending at:</b>				
<b>Topsham Fair Mall</b>	4%	18%	17%	2%
<b>Hamilton Court</b>	1%	5%	5%	<1%
<b>Mallett Drive</b>	1%	<1%	<1%	2%
<b>I-295 NB Ramp</b>	10%	1%	2%	9%
<b>I-295 SB Ramp</b>	2%	17%	14%	1%
<b>Main St SB at Summer St</b>	36%	1%	-	64%

**Traffic Forecasting**

This study was undertaken to address traffic operations and safety for future traffic conditions. Therefore, traffic forecasting was completed to estimate the traffic patterns in the Town for both a 5 year and 20 year design horizon.

Gorrill-Palmer Consulting Engineers, Inc. studied traffic trends over the last ten years to determine a background growth rate for traffic in the area. Our office took precaution in making sure that the opening of the Coastal Connector and other major developments in the Town were not included in the background growth rates. Based on traffic counts performed by Maine Department of Transportation, background traffic (not associated with specific projects in Town) appears to be growing at a rate of 1% per year.

In addition, Gorrill-Palmer Consulting Engineers, Inc. met with Town officials to determine the potential for commercial, retail and residential growth in the Town of Topsham. Commercial development could include service, office and industrial land uses, as well as retail and restaurants. Table 3 in Appendix 2 summarizes the potential development identified in the Town. Our office looked at traffic growth associated with this development that could potentially occur for the 5 year and 20 year time horizons. The trip assignment for the potential commercial growth is shown on Figures 10 and 12 for the 2009 and 2024 design years, respectively. The trip assignment for the potential residential growth is shown on Figures 11 and 13 for the 2009 and 2024 design years, respectively.

Gorrill-Palmer Consulting Engineers, Inc. estimated 2009 and 2024 Design Year Volumes by applying a background growth rate of 1% per year to the traffic counts collected in the summer of 2004 and combining these volumes with the trip assignment for the potential residential and commercial development for the 2009 and 2024 design years. These volumes are shown on Figures 15 and 16 for the 2009 and 2024 year, respectively.

## Capacity Analyses

Gorrill-Palmer Consulting Engineers, Inc. completed capacity analyses of the study area intersections under existing roadway conditions for the 2009 and 2024 Design Year Volumes for the PM peak hour. Although counts were completed for the AM peak hour, the volumes were significantly lower than for the PM peak hour and did not indicate capacity issues that would not be present in the PM peak hour. Therefore, only the PM peak hour was analyzed. The intersections were analyzed with the Synchro software package. Levels of service rankings are similar to the academic ranking system where an 'A' is very good with little control delay and an 'F' represents very poor conditions. A level of service 'D' and higher is desirable for a signalized intersection.

The following tables summarize the relationship between control delay and level of service for signalized and unsignalized intersections:

**Table 2.4: Level of Service Criteria for Signalized Intersections**

<b>Level of Service</b>	<b>Control Delay per Vehicle (sec)</b>
A	Up to 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	Greater than 80.0

**Table 2.5: Level of Service Criteria for Unsignalized Intersections**

<b>Level of Service</b>	<b>Control Delay per Vehicle (sec)</b>
A	Up to 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	Greater than 50.0

The capacity analyses for the intersections that pose capacity issues under existing roadway conditions are summarized in the following tables. The detailed capacity printouts for all intersections are included in Appendix 5.

*Route 196 Corridor*

**Table 2.6: Level of Service for Rte 196 at I-295 SB Ramps**

Approach/Movement	2009 Existing Conditions		2024 Existing Conditions	
	Delay	LOS	Delay	LOS
I-295 SB Off-ramp – NBR	41	E	>100	F
I-295 SB Off-ramp – SBR	18	C	93	F
Route 196 – EBTR	<1	A	<1	A
Route 196 – WBL	63	F	>100	F
Route 196 – WBT	<1	A	<1	A

**Table 2.7: Level of Service for Rte 196 at I-295 NB Ramps**

Approach/Movement	2009 Existing Conditions		2024 Existing Conditions	
	Delay	LOS	Delay	LOS
I-295 NB Off-ramp – NBL	28	C	89	F
I-295 NB Off-ramp – NBR	32	C	>100	F
Route 196 – EBL	54	D	>100	F
Route 196 – EBT	13	B	>100	F
Route 196 – WBT	46	D	>100	F
Route 196 – WBR	1	A	1	A
<b>Overall Intersection</b>	<b>29</b>	<b>C</b>	<b>&gt;100</b>	<b>F</b>

**Table 2.8: Level of Service for Rte 196 at Topsham Fair Mall Road**

Approach/Movement	2009 Existing Conditions		2024 Existing Conditions	
	Delay	LOS	Delay	LOS
Topsham Fair Mall – NBL	56	E	>100	F
Topsham Fair Mall – NBLT	52	D	>100	F
Topsham Fair Mall – NBR	14	B	39	D
Crooker Property – SBL	-	-	>100	F
Crooker Property – SBT	53	D	52	D
Crooker Property – SBR	24	C	46	D
Route 196 – EBL	64	E	>100	F
Route 196 – EBT	36	D	>100	F
Route 196 – EBR	4	A	10	A
Route 196 – WBL	48	D	>100	F
Route 196 – WBT	79	E	>100	F
Route 196 – WBR	-	-	10	A
<b>Overall Intersection</b>	<b>46</b>	<b>D</b>	<b>&gt;100</b>	<b>F</b>

**Table 2.9: Level of Service for Rte 196 at Main Street**

Approach/Movement	2009 Existing Conditions		2024 Existing Conditions	
	Delay	LOS	Delay	LOS
Main Street – NBL	52	D	>100	F
Main Street – NBTR	>100	F	>100	F
Main Street – SBL	>100	F	>100	F
Main Street – SBTR	33	C	>100	F
Route 196 – EBL	67	E	>100	F
Route 196 – EBT	22	C	28	C
Route 196 – EBR	1	A	1	A
Route 196 – WBL	38	D	>100	F
Route 196 – WBT	45	D	>100	F
Route 196 – WBR	1	A	1	A
<b>Overall Intersection</b>	<b>43</b>	<b>D</b>	<b>&gt;100</b>	<b>F</b>

Movements at the intersection of Route 196 and Bypass Drive are anticipated to operate at acceptable levels of service under existing roadway geometry during the design years of 2009 and 2024. Our office performed a queue study at this location simultaneous to the turning movement counts. The queue study indicated queues of up to 900 feet occurring during the PM peak hour on the northbound Route 196 approach. The advance warning sign for the traffic signal is located less than 1,000 ft from the intersection. This does not provide adequate stopping distance between the advance warning sign and the end of queue.

Lower Village

Due to the proximity of the intersections in the Lower Village and the interaction that occurs between adjacent intersections, the Lower Village was analyzed using the SimTraffic software package. The results are summarized in the following paragraphs.

**Table 2.10: Level of Service for Maine Street at Rte 1 SB Off-ramp**

Approach/Movement	2009 Existing Conditions		2024 Existing Conditions	
	Delay	LOS	Delay	LOS
Maine Street – NB	26	D	38	E
Maine Street – SB	9	A	9	A
Rte 1 Ramp – WBR	>100	F	>100	F

**Table 2.11: Level of Service for Main Street at Summer Street/Bowdoin Mill**

Approach/Movement	2009 Existing Conditions		2024 Existing Conditions	
	Delay	LOS	Delay	LOS
Main Street – NB	>100	F	>100	F
Main Street – SB	46	E	37	E
Summer Street - EB	>100	F	>100	F
Bowdoin Mill – WBLT	>100	F	>100	F
Bowdoin Mill – WBR	>100	F	>100	F

**Table 2.12: Level of Service for Main Street at Winter Street**

Approach/Movement	2009 Existing Conditions		2024 Existing Conditions	
	Delay	LOS	Delay	LOS
Main Street – NB	42	E	68	E
Main Street – SB	15	B	12	B
Winter Street – EB	>100	F	>100	F
Thompson Lane – WB	>100	F	>100	F

Table 2.13: Level of Service for Main Street at Elm Street

Approach/Movement	2009 Existing Conditions		2024 Existing Conditions	
	Delay	LOS	Delay	LOS
Main Street – NBL	4	A	5	A
Main Street – NBTR	35	D	>100	F
Main Street – SBL	6	A	7	A
Main Street – SBTR	9	A	24	C
Elm Street – WBLT	50	D	>100	F
Elm Street – WBR	14	B	25	C
<b>Overall Intersection</b>	<b>27</b>	<b>C</b>	<b>75</b>	<b>E</b>

The capacity results for the intersection of Main Street/Elm Street were reported based on the Synchro analyses. Our office also completed an analysis of the Lower Village utilizing SimTraffic to examine interactions between intersections. The analysis showed that operations at other intersections are anticipated to create queues extending into the intersection of Main Street/Elm Street, significantly decreasing operations.

*Northern Main Street*

Table 2.14: Level of Service for Main Street at Monument Place

Approach/Movement	2009 Existing Conditions*		2024 Existing Conditions**	
	Delay	LOS	Delay	LOS
Main Street – NBL	12 (25)	B (C)	>100	F
Main Street – NBTR	<1 (6)	A (A)	8	A
Main Street – SBL	10 (5)	A (A)	6	A
Main Street – SBTR	<1 (4)	A (A)	6	A
Monument Place – EBLT	>100 (36)	F (D)	45	D
Monument Place – EBR	16 (10)	C (A)	50	D
Wright Pierce - WB	>100 (18)	F (B)	21	C
<b>Overall Intersection</b>	<b>- (10)</b>	<b>- (A)</b>	<b>48</b>	<b>D</b>

\*Note: xx – unsignalized, (xx) – signalized

\*\*Note: Intersection is signalized

Table 2.15: Level of Service for Main Street at Eagles Way

Approach/Movement	2009 Existing Conditions		2024 Existing Conditions	
	Delay	LOS	Delay	LOS
Main Street – NB	<1	A	<1	A
Main Street – SBL	1	A	3	A
Main Street – SBT	<1	A	<1	A
Eagles Way – WBL	>100	F	>100	F
Eagles Way – WBR	19	C	30	D

Table 2.16: Level of Service for Main Street at CanAm Drive

Approach/Movement	2009 Existing Conditions		2024 Existing Conditions	
	Delay	LOS	Delay	LOS
Main Street – NB	<1	A	<1	A
Main Street – SBL	10	A	12	B
Main Street – SBT	<1	A	<1	A
CanAm Drive – WB	>100	F	>100	F

As shown in the tables above, several deficiencies currently exist in the Lower Village and in portions of the Upper Village. These deficiencies include, but are not limited to, the following:

- The westbound left turn and northbound right turn at the intersection of Route 196 and the I-295 SB Ramps currently operate at low levels of service. In addition, the southbound right turn from the I-295 SB off-ramp is anticipated to operate at level of service 'F' for the 2024 design year under existing conditions.
- Several movements at the intersection of Route 196 and the I-295 NB Ramps are anticipated to operate at low levels of service for the 2024 design year under existing conditions.
- Several movements at the intersection of Route 196 and Topsham Fair Mall Road are anticipated to operate at level of service 'E' for the 2009 design year, and level of service 'F' for the 2024 design year under existing conditions.
- The intersection of Route 196 and Main Street currently operates at low levels of service, creating significant queuing and delay.
- A great deal of congestion and queuing occurs in the Lower Village, as Main Street consists of a single lane in each direction with no turning lanes. Vehicles waiting to turn left onto Winter Street, Summer Street, and the Bowdoin Mill often block traffic causing long queues that extend through adjacent intersections, further worsening the levels of service at surrounding intersections. The majority of the movements at all intersections within the Lower Village are anticipated to operate at level of service 'F' during the 2024 design year under existing conditions.
- Traffic exiting Eagles Way and CanAm Drive onto Route 201 is anticipated to experience significant delay during the 2009 and 2024 design years under existing conditions.

# Chapter 3

## Identification of Alternatives

Task 1 of this study was intended to identify alternative means of access to the Topsham Fair Mall in order to relieve the capacity issues posed by the left-turning traffic at the intersection of Route 196 and Topsham Fair Mall Road.

Although a number of alternatives were identified in Task 1, several of these were found infeasible for a short-term solution to the issues at the Topsham Fair Mall intersection. However, many of these alternatives were considered in Task 2 as long-term solutions to traffic issues in the Town. The result of Task 1 was that a connector road extending from Monument Place to the Topsham Fair Mall Road should be constructed to serve as a parallel service road and reduce volumes on Route 196. The construction of the Monument Place Extension was approved by Town vote in the spring of 2005. For a full discussion of Task 1, please refer to the Task 1 Report, dated October 2004.

A public meeting took place on June 21, 2004 for the public to voice concerns about traffic conditions in the Town and make suggestions for alternative access to the Topsham Fair Mall and potential traffic improvements to be made throughout the Town. Based on general input of the public, the following options, in addition to those identified in Task 1, were identified as potential alternatives to relieve congestion and improve traffic operations and safety in the area:

- Construct interchange at Route 201/I-295
- Widen Coastal Connector (Route 196) to four lanes
- Roundabout in Lower Village at Main Street/Elm Street
- Reconstruct Black Bridge
- Use existing railroad along the riverfront as pedestrian/bicycle path
- Connector road from Topsham Fair Mall Road south to Brunswick along railroad
- Make Elm Street Extension/Elm Street/Main Street a full four-way intersection, closing the Winter Street Spur and using this area for parking
- Eliminate left-turn from Main Street onto Winter Street Spur, moving left-turns up to the signal at Elm Street Extension
- Open Elm Street Extension to two-way traffic flow, allowing left turns onto Main Street at the signalized intersection
- Signalize the intersection of Main Street and Summer Street/Bowdoin Mill
- Add left turn bays to Main Street onto Summer Street and the Bowdoin Mill

- Connector road from Summer Street to Winter Street behind the Picture Framer
- Widen and enhance Winter Street to serve as parallel access to Route 196
- Connector road from Topsham Fair Mall Road to commercial development proposed on the western side of I-295
- Connector road from Route 196 to River Road through commercial development west of I-295
- Reconstruct Black Bridge to be a connection from Brunswick to Topsham Fair Mall by use of the Guilford Railroad
- Connector road from Coastal Connector (Route 196) to CanAm Drive
- Traffic calming measures on Mallett Drive, Bridge Street and Winter Street
- Realignment of Summer Street
- Make Green Street one-way northbound
- Roundabout at Bridge/Bickford/Winter Streets
- Make Black Bridge one-way southbound into Brunswick with a right turn off the bridge only.

These alternatives were examined individually and in combination to find the most favorable alternatives. After preliminary analyses of the proposed alternatives and several discussions with the Town staff and advisory committee, a phasing plan was developed for implementing several improvements throughout the Town. The following paragraphs discuss the improvements that could take place in each phase. Each of the phases is shown in Figures 1-10 of Appendix 3. All of these phases assume that the Monument Place Extension, which includes a connector road from Monument Place to the Topsham Fair Mall Road, will be completed as part of Task 1.

A primary concern of the Town of Topsham is the Lower Village area. Traffic volumes on Main Street are currently very high to be accommodated by a two-lane roadway with no-turn lanes. In addition, there is concern that pedestrian and bicycle facilities in the Lower Village are not sufficient. Therefore, the improvements in the 2009 Phases of the study focus mainly on the Lower Village area.

### **2009 Lower Village**

As stated in the Lower Village Plan, the community envisions the Lower Village as a slow traffic and pedestrian friendly area. Currently, traffic in the Lower Village moves at speeds above the speed limit during off peak hours and comes nearly to a stop during peak periods when congestion is heavy. Either high speeds or heavy congestion make it difficult for pedestrians to cross Main Street safely in the Lower Village. The 2009 Short Term Phase includes improvements in the Lower Village and to the Route 196 corridor to be made by 2009. The

improvements in the Lower Village are intended to aid the community in achieving its vision of the Lower Village. These improvements include the following in order of year of completion:

**2005-2006:**

- Make Thompson's Lane one-way toward Green Street.

**2006-2007:**

- Reconstruct Elm Street Extension to allow two-way traffic and make Elm Street/Main Street intersection a true four-way intersection.
- Eliminate left turns from Main Street northbound onto Winter Street, moving left turns to the signal at Elm Street/Elm Street Extension. Make Winter Street Spur one-way towards Main Street from the entrance to the Picture Framer parking lot. Add parking spaces on the northern side on Winter Street Spur along the one-way section.
- Reinstate left turn from Rte 1 SB off-ramp onto Maine Street in Brunswick and signalize the intersection of Maine Street and the Rte 1 SB off-ramp. Prohibit right turns on red from ramp to provide gaps in traffic flow into Lower Village. Install a sign on Route 1 indicating that Route 201 can be accessed from the Coastal Connector.
- Add pedestrian crosswalk from the southern entrance of Bowdoin Mill across Main Street to the sidewalk leading to the Frank Wood Bridge.

**Ongoing:**

- Determine if warrants are met for a traffic signal at Bowdoin Mill and Summer Street. When met, add traffic light and left turn bays on Main Street at Summer Street and Bowdoin Mill. Lights will include pedestrian phase.
- Work with the MaineDOT to redesignate Route 24 to extend from Middlesex Road to Bypass Drive to Route 196 to Route 1 and reconnect with the existing Route 24 at Cook's Corner. This would redirect traffic from Elm Street, Main Street, Maine Street (Brunswick) and Bath Road that wants to go to Harpswell.

**2009 Upper Village**

Recommendations in the section of Topsham north of the Lower Village include the following:

**2005-2006:**

- Construct a connector road from Monument Place to Topsham Fair Mall Road (to be called Monument Place Extension) with connections to Hamilton Court and Mallett Drive. As part of this improvement, the intersection of Monument Place with Route 196 will be realigned and left

turns out of Monument Place will be prohibited. The left turns into Monument Place and Union Park Drive from Route 196 should be monitored and prohibited if they raise a safety concern. In addition, improvements would be made to the intersection of Monument Place and Main Street including separate left and right turn lanes exiting Monument Place and extension of the northbound left turn lane from Main Street onto Monument Place. This intersection should be monitored for installation of a traffic signal to be coordinated with the signal at Route 196.

- Lengthen the northbound left turn lane on Main Street at Route 196. Redesignate the center left turn lane as a through lane.
- Modify the median on Route 196 to allow for a longer left turn pocket for traffic heading north on Route 201. Monitor for a possible second left turn lane (eastbound) on Route 196 for traffic heading north on Route 201.

#### **2006-2007:**

- Improve pedestrian crossing safety at the Route 196/Route 201 intersection.
- Construct necessary improvements on Main Street in the vicinity of the new Town Office and Public Safety site (planned for the southwest corner of Main Street at Monument Place).

#### **2007:**

- Accept CanAm Drive from Republic Drive to Mountain Road as a public way. Open the gate at the end of CanAm Drive.
- Make Eagles Way one-way towards Mt. Ararat High School and provide a connection from Eagles Way to CanAm Drive.
- Signalize the intersection of CanAm Drive and Main Street.

#### **2008-2009:**

- Widen Route 196 (Coastal Connector) to four lanes from Bypass Drive to Main Street.

### **2024 Improvements**

The 2024 phased improvements focus mainly on the section of Topsham north of the Lower Village surrounding the Topsham Fair Mall and the I-295 ramps. Each of these phases assumes completion of the 2009 improvements and all previous phases. The phasing has been established to provide the best apparent benefit/cost ratio relative to traffic flow. The intent would be to begin addressing these improvements as soon as possible and using this framework as a planning tool with future development. For example, the eastern and western Route 201/Route 196 connectors could be constructed with private funds as their surrounding land areas are developed. Other work, such as widening the Route

196 overpass over I-295 would likely require a combination of private and public funding. Phase 1A through Phase 2B are the most likely to be implemented based on traffic forecast for potential development. Recommendations in Phases 3A through 3C should be revisited in the future as actual development patterns emerge.

### **Phase 1A**

The 2024 Phase 1 includes the following improvements:

- Construct connector road extending from Route 201 to Route 196 west of I-295 (referred to as the Rte 201/196 Western Connector)
- Construct connector road extending from Route 196 to River Road thru the proposed commercial development west of I-295 (referred to as the Rte196/River Rd Connector).
- Signalize the intersection of Route 196 and the Route 201/196 Western Connector. Expand Route 196 to four lanes west of I-295 with raised medians within 1,000 feet of signals.
- Signalize the intersection of Route 196 and the I-295 SB Ramps
- Provide separate left and right turn lanes exiting Mallett Drive onto Route 196.
- Signalize intersection of Meadow Cross Road/Route 196 (This signal may be placed at a different location, but should be placed to mitigate the impacts of residential development along Route 196 west of I-295. The signal could be placed at any intersection west of I-295 if a more appropriate location is identified.)

See Figure 5 of Appendix 3.

### **2024 Phase 1B**

Phase 1B proposes to construct a connector road extending from Route 201 thru the Crooker Property to Route 196 opposite the Topsham Fair Mall Road (referred to as the Rte 201/196 Eastern Connector). See Figure 6 of Appendix 3.

### **2024 Phase 2A**

The 2024 Phase 2A improvements propose to expand Route 196 westbound to three thru lanes from the intersection with Topsham Fair Mall Road to the I-295 SB on-ramp. The westbound Rte 196 approach at Topsham Fair Mall Road would contain two left-turn lanes, three thru lanes and a right turn lane. The westbound Rte 196 approach at the I-295 NB ramps would contain two thru lanes and a shared thru/right turn lane. The Rte 196 overpass over I-295 would need to be expanded to contain three westbound thru lanes over the bridge. The

inner-most thru lane would become a left-turn lane onto the I-295 SB on-ramp on the west side of the bridge. See Figure 7 of Appendix 3.

### **2024 Phase 2B**

The 2024 Phase 2B improvements propose a connector road from Topsham Fair Mall Road to the proposed commercial development on the western side of I-295 (referred to as the Commercial Connector). See Figure 8 of Appendix 3.

### **2024 Phase 3A**

Proposed for 2024 Phase 3A is southbound on-ramp to I-295 from the Commercial Connector. See Figure 9 of Appendix 3.

### **2024 Phase 3B**

The 2024 Phase 3B improvements include the following improvements to the I-295 ramps:

- Construct a northbound on-ramp from Main Street (Route 201) opposite the Rte 201/196 Eastern Connector to I-295.
- Close existing I-295 NB on-ramp from Route 196.
- Construct I-295 SB off-ramp to Main Street (Route 201) opposite the Rte 201/196 Western Connector.
- Close the existing I-295 SB off-ramp to Route 196 westbound. The I-295 SB off-ramp to Route 196 eastbound would remain open.

See Figure 10 of Appendix 3.

### **2024 Phase 3C**

The 2024 Phase 3C improvements would be construction of an I-295 northbound off-ramp to the Topsham Fair Mall Road. See Figure 11 of Appendix 3.

## **Pedestrian and Bicycle Improvements**

In addition to the traffic capacity improvement listed above, Gorrill-Palmer Consulting Engineers Inc. identified several deficiencies in the pedestrian and bicycle facilities in the Town of Topsham and has developed a set of improvements to address these deficiencies. The pedestrian and bicycle facility improvements have not been divided into phases, but rather should be addressed as funds become available or as development occurs in the areas surrounding the facilities.

The intersection of Main Street/Elm Street/Elm Street Extension currently has pedestrian crosswalks on the eastern and southern legs of the intersection with pedestrian signals on the eastern leg only. Our office recommends installation of pedestrian signals on the southern leg.

The intersection of Topsham Fair Mall Road/Hannaford has a pedestrian crossing on the eastern leg only. Our office recommends a pedestrian crossing with pedestrian actuated signals on the southern leg of this intersection.

A sidewalk currently exists along the eastern side of Route 201 from CanAm Drive to the Lower Village. With construction of the Town Office and Public Safety Building on Main Street, a sidewalk should be constructed on the western side of Main Street from Route 196 to Wilson Street. Due to terrain and proximity of buildings very close to the street, it would be costly to construct a sidewalk on the western side of Main Street all the way to the Lower Village. However, the crosswalk across Main Street at Wilson Street will enable pedestrians to cross to the sidewalk on the eastern side of Main to access the Lower Village.

Several residents in the Town have shown interest in having a multi-use path along the river in the Lower Village area. Our office recommends the Town examine locations for a potential multi-use path along the river to extend from River Road to the Waterfront Park. The existing Guilford Railroad could provide a location for the multi-use path. Provided the Black Bridge is abandoned by the railroad and a “rails-to-trails” project is initiated, a pedestrian/bicycle path could extend across the upper deck of the Black Bridge.

There are currently plans to improve the rudimentary trail leading from the Lower Village along the Androscoggin River to the Swinging Bridge. Should Brunswick construct a path on its side from the Swinging Bridge to the Frank Wood Bridge, a continuous loop trail could be established. The Town also has a long term goal of establishing a path from the Lower Village along the river to the Merrymeeting Bridge and the Androscoggin River Bicycle Path extension in Topsham. This trail would be for seasonal use only, as it is in the flood plain and is often under water during the spring.

A pedestrian crosswalk currently exists in the Lower Village on the northern leg of the intersection with Summer Street. A sign is posted in the crosswalk that states that vehicles must yield to pedestrians in the crosswalk. However, several residents in the Town expressed concern that it is difficult to cross Main Street in the vicinity of Summer Street, particularly during the evening. A crosswalk with pedestrian actuated flashers should be installed in the Lower Village to allow pedestrians to cross Main Street with more ease and safety. Given the location of the parking on the west side of Main Street for Bowdoin

Mill on the east side of Main Street, the crosswalk immediately north of Summer Street is likely the best location for the flasher.

An alternative to installing upgrades to the crosswalk north of Summer Street for the Bowdoin Mill would be to construct a pedestrian underpass across Main Street at the Frank Wood Bridge abutment. This would be completed only if the Frank Wood Bridge were reconstructed, and could be completed in addition to the crosswalk north of Summer Street.

Route 196 currently has bike lanes from Route 1 to the Topsham Fair Mall Road, but sidewalks only from Main Street to Topsham Fair Mall Road. Our office recommends installation of a sidewalk or multi-use path along the southern side of Route 196 from Community Way to Main Street. The Topsham Trails Bicycle Path Plan calls for the construction of a multi-use path along the southern side of the Coastal Connector, angling through the woods behind Lee Auto and the Post Office, and intersecting Main Street between the Post Office and Wright-Pierce. This location may be safer than continuing along Route 196 through the Main Street intersection. However, this would require a pedestrian/bicycle crossing at the Monument Place intersection and extending the path from Route 196 to Monument Place along the western side of Main Street in order to maintain a continuous pathway.

In addition to the above improvements, the Town should develop a Pedestrian and Bicycle Committee to monitor pedestrian and bicycle facilities, develop a plan for making improvements, and recommend improvements to facilities. In conjunction, a Traffic Committee should be established to provide ongoing monitoring of traffic conditions in Topsham. These two committees should work together to make the Town of Topsham more pedestrian and bicycle friendly.

### Ongoing

The Town of Topsham should work with the Town of Brunswick to evaluate the possibility of making traffic flow one-way on the Black Bridge, and to determine in which direction traffic should travel over the bridge. One-way traffic flow from Topsham to Brunswick would increase left turns from Main Street onto Summer Street and Winter Street, increasing delays and queues in the Lower Village. However, one-way traffic flow on the Black Bridge from Brunswick into Topsham would increase right turns from Summer Street and Winter Street onto Main Street. Concerns have been raised that vehicles waiting on Mill Street to turn onto the Black Bridge create queues on Mill Street and are a safety hazard. Making traffic one-way from Brunswick to Topsham on the Black Bridge would alleviate this issue because vehicles on Mill Street would not have to wait for a vehicle coming from Topsham and would not have try to see whether a vehicle was crossing the bridge from Topsham. Therefore, one-way

flow from Brunswick to Topsham appears the most favorable option as it provides more capacity and safety benefits than the alternative route.

At the time traffic counts were collected at the Winter Street access to the Topsham Fair Mall, this access had only recently been constructed and may have been underutilized. Since this time, use of the Winter Street access has increased. Construction of the Monument Place Extension is anticipated to decrease volumes on the Winter Street access. However, the Winter Street access should be monitored for capacity as drivers become more aware of the access.

Green Street has raised safety and capacity concerns, particularly with its connection to Main Street. Residents have expressed concern that speeds are too high on Green Street, and that it is difficult to turn out of Green Street due to high volumes of traffic on Main Street and limited sight distances. Some residents have expressed a desire to see Green Street become one-way away from Main Street. This alternative is not recommended due to sight distance obstructions and the steep grade at the intersection of Green Street with Elm Street. However, the Town should continue to monitor traffic on Green Street and examine the possibility of making traffic flow one-way or closing the connection to Main Street or Elm Street.

### **Preliminary Opinion of Probable Construction Costs**

Gorrill-Palmer Consulting Engineers, Inc. has completed preliminary opinions of probable construction costs for the recommended measures with the exception of the interstate ramp work that we have recommended for future reevaluation. The costs are very preliminary and general in nature to provide an order of magnitude assessment of the various improvements. They do not include engineering, survey, right-of-way, utilities or potentially unique costs associated with particular conditions. They also do not include annual escalation of costs to future dollars. We have generally utilized per foot costs as follows:

- ◆ Rural two-lane roadways on new alignments: \$300 per linear foot
- ◆ Urban two-lane roadways on new alignments: \$350 per linear foot
- ◆ Rural widening: \$125 per lane foot
- ◆ Urban widening: \$200 per lane foot

The following table summarizes the recommended improvements and the preliminary opinions of probable construction cost.

**Topsham Transportation Study  
Preliminary Opinion of Probable Construction Cost**

<b>Alternative</b>	<b>Improvement</b>	<b>Length (ft)</b>	<b>Cost (\$/ft)</b>	<b>Flat Cost</b>	<b>Total Cost</b>
Short Term Improvements	Elm Ext Mod to 2-way	250	\$150	\$15,000	\$52,500
	Winter St Spur 1-way	0	-	\$3,000	\$3,000
	Rt 1 Ramp left turn at Maine w/ signal	150	\$200	\$50,000	\$80,000
	Signal at Bowdoin/Summer	0	-	\$120,000	\$120,000
	Signal at Main/Monument	0	-	\$120,000	\$120,000
	Connect Republic Ave to High School	100	\$300		\$30,000
	Signalize CanAM/Main	0	-	\$120,000	\$120,000
	Conv. Eagles Way to One Way	0	-	\$3,000	\$3,000
	Signalize Mods for HCLs	0	-	\$3,000	\$3,000
	Reduce Right Turn Radius on Connector at Rt 24	0	-	\$2,000	\$2,000
	<b>Total</b>				<b>\$533,500</b>
Coastal Connector 4 Lanes*	At grade work	5100	\$ 250		\$ 1,275,000
	Modify Signal at Comm Way	0	-	\$50,000	\$ 50,000
	<b>Total</b>				<b>\$ 1,325,000</b>
1-Monument Connector	Connector	2200	\$350		\$770,000
	Approach work on Mallett/Mamilton	600	\$200		\$120,000
	Turn lane on Monument	200	\$200		\$40,000
	Extend NBL lane on Main	150	\$200		\$30,000
	Extend EBL Rt 196/Main	350	\$200		\$70,000
	Restripe NB Main	350	\$20		\$6,000
	Signalize Mon/Main	0	-	\$120,000	\$120,000
	<b>Total</b>				<b>\$1,156,000</b>
Phase 1A	Western Connector	3700	\$300		\$1,110,000
	Route 196/River Road Con	2200	\$350		\$770,000
	EBL on Rt 196 at Conn	300	\$200		\$60,000
	WBR on Rt 196 at Conn	300	\$200		\$60,000
	Widen Rt 196 to 4 lanes	1600	\$400		\$640,000
	Signalization of 196/Connector	0	-	\$120,000	\$120,000
	Signalize I-295 SB Ramps	0	-	\$120,000	\$120,000
	Mallett Right Turn Exit Ln	200	\$200		\$40,000
	Signalize 196/Area J Int.	0	-	\$120,000	\$120,000
<b>Total</b>				<b>\$3,040,000</b>	
Phase 1B	Eastern Connector	2400	\$350		\$840,000
	<b>Total</b>				<b>\$840,000</b>
Phase 2A	Widen 196 WB	2100	\$300		\$630,000
	I-295 Bridge Modifications	0	-	\$200,000	\$200,000
	2 Signal Modifications	0	-	\$70,000	\$70,000
<b>Total</b>				<b>\$900,000</b>	
Phase 2B	Commercial Connector	1700	\$300		\$510,000
	<b>Total</b>				<b>\$510,000</b>
Pedestrian Improvements	Elm/Main	0	-	\$5,000	\$5,000
	TFMR/Hannaford	0	-	\$5,000	\$5,000
	Main St East Sidewalk	3700	\$50		\$185,000
	Lower V. Ped Act Flasher	0	-	\$15,000	\$15,000
	Coastal Con. sidewalk Main to Comm. Way	2400	\$40		\$96,000
	Crosswalk north of Frank Wood Bridge	0	-	\$2,000	\$2,000
	<b>Total</b>				<b>\$306,000</b>

\*MaineDOT has indicated that the railroad bridge and the remainder of the roadway were designed assuming future widening, which will help keep cost down.

\*\* These preliminary opinion of probable construction costs are based on schematic drawings on aerial photographs. The improvements identified are based on a preliminary traffic evaluation and could change as the study is finalized. The costs are based on rough per foot unit prices and do not include engineering, survey, right-of-way and unique field conditions. The costs will change as detailed designs are prepared based on actual field surveys and geotechnical investigations, as well as comments that may be received from reviewing agencies.

# Chapter 4

## Traffic Reassignment

The purpose of this chapter is to discuss the methodology used to reassign traffic within the study area based on the infrastructure improvements discussed in Chapter 3. As improvements to existing roadways are made and as new roadway connections are constructed, existing traffic patterns will change as drivers choose easier, more direct routes. The reassignment of traffic was performed based on the license plate study conducted on Thursday, July 29, 2004 and a 20-mile population gravity model shown in Tables 1 and 2 of Appendix 4 for the commercial and residential development, respectively. The results of the license plate study are included in Appendix 2. A discussion of methods and assumptions used for the reassignment of trips for each alternative is provided below.

### **2009 Lower Village**

Gorrill-Palmer Consulting Engineers, Inc. completed a feasibility study in 2000 for the re-opening of the left turn from the Rte 1 SB ramp to Maine Street in Brunswick. A license plate survey was completed as part of this study to determine the route drivers currently take to reach Maine Street SB in Brunswick. This study revealed that several vehicles currently use the Coastal Connector exit from Rte 1 SB and Rte 24 (Elm Street) to reach Main Street (Route 201) southbound thru the Lower Village and into Brunswick. Several drivers also make a right turn off the Rte 1 SB ramp to Maine Street in Brunswick and turn around at Summer Street, Bowdoin Mill and Winter Street to reach Maine Street southbound in Brunswick. Gorrill-Palmer Consulting Engineers, Inc. used the findings of this feasibility study to reassign vehicles to the Rte 1 SB off-ramp to Maine Street SB.

Our office reassigned all vehicles currently turning left from Main Street northbound onto Winter Street to a left turn onto Elm Street Extension. Our office also reassigned a portion of the vehicles currently using Wilson Street to make a left turn onto Main Street northbound to the intersection of Elm Street Extension and Main Street.

The trip reassignment associated with applying the 2009 Lower Village improvements is shown on Figure 23 of Appendix 2.

### **2009 Upper Village**

Gorrill-Palmer Consulting Engineers, Inc. utilized the results of the license plate survey performed on July 29, 2004 to reassign vehicles to the Monument Place

Extension. Based on the survey, approximately 17% of the vehicles headed northbound on Route 201 thru the Lower Village are destined for the Topsham Fair Mall. These vehicles were reassigned to the Monument Place Extension. Our office also utilized the commercial gravity model shown in Table 1 of Appendix 4 to reassign the commercial “other development”. The gravity model shows that approximately 20% of the trips associated with the commercial development at the Topsham Fair Mall will use Main Street thru the Lower Village. These trips were reassigned from Route 196 to the Monument Place Extension.

Our office reassigned all of the vehicles currently exiting Eagles Way onto Main Street (Route 201) to the intersection of CanAm Drive and Main Street.

A great deal of commercial and residential development is proposed for the 2009 and 2024 horizons in the area surrounding CanAm Drive, Republic Drive, and Mountain Road. The 2009 Upper Village Topsham Phase provides a connection from CanAm Drive to Route 196 thru some of this commercial and residential development. Gorrill-Palmer Consulting Engineers, Inc. used the gravity models for the commercial and residential development shown in Tables 1 and 2, respectively, of Appendix 4 to reassign vehicles from the intersection of Canam Drive and Main Street to the intersection of Route 196 (Coastal Connector) and Community Way.

### **2024 Phase 1A and 1B**

Gorrill-Palmer Consulting Engineers, Inc. utilized the results of the license plate survey performed on July 29, 2004 and the commercial and residential gravity models in Tables 1 and 2 of Appendix 4 to reassign trips for this phase. The license plate study indicates that approximately 12% of the traffic headed southbound on Main Street (Route 201) at the I-295 overpass is destined for the I-295 NB and SB on-ramps. These vehicles were reassigned to the Rte 201/196 Eastern and Western Connectors. In addition, the survey shows that approximately 4% of the traffic headed southbound on Main Street at the I-295 overpass is destined for the Topsham Fair Mall. This traffic was reassigned to the Rte 201/196 Eastern Connector. The commercial gravity model shows that approximately 6% of the traffic associated with the “other development” around the Topsham Fair Mall and west of I-295 will utilize Main Street (Route 201) north of CanAm Drive. These vehicles were reassigned to the Rte 201/196 Eastern and Western Connectors. The residential gravity model shows that approximately 1% of the “other development” occurring to the west of I-295 will utilize Main Street north of CanAm Drive, approximately 16% of the development off of Main Street north of Route 196 will utilize the I-295 NB and SB ramps, and approximately 50% of the development off of Main Street north of

Route 196 will utilize Route 196 west of the I-295 ramps. This traffic was reassigned to the Rte 201/196 Eastern and Western Connectors.

The commercial gravity model shows that approximately 20% of the traffic associated with the commercial development west of I-295 will utilize Main Street thru the Lower Village. Approximately 50% of this traffic was reassigned from Route 196 to the Rte 196/River Road Connector.

The trip reassignment for 2024 Phase 1A and 1B are shown on Figure 27 and 29 of Appendix 2, respectively.

### **2024 Phase 2A**

This phase involves only geometric changes to the existing Route 196. Therefore, no trip reassignment was performed for this phase.

### **2024 Phase 2B**

This phase includes the construction of a connector road between the Topsham Fair Mall and the Rte 196/River Road Connector. To reassign trips for this phase, Gorrill-Palmer Consulting Engineers, Inc. assumed that approximately 20% of the trips associated with the Topsham Fair Mall and the commercial development around the Route 196/I-295 interchange are shared trips. These are trips that visit more than one location within the same area of commercial development. The assumption of 20% shared trips is typical for shopping centers that contain retail, restaurants, office space, and services within a contained area. Our office reassigned these shared trips to the Commercial Connector. The trip reassignment associated with this phase is shown in Figure 31 of Appendix 2.

### **2024 Phase 3A**

This alternative includes construction of an on-ramp from the Commercial Connector to I-295 SB. Gorrill-Palmer Consulting Engineers, Inc. utilized the commercial gravity model shown in Table 1 of Appendix 4 to reassign trips for this phase. The gravity model indicates that approximately 20% of the traffic exiting the Topsham Fair Mall and the development to the west of I-295 is destined for I-295 SB. This traffic has been reassigned to the proposed I-295 SB on-ramp from the Commercial Connector. The trip reassignment associated with this phase is shown in Figure 33 of Appendix 2.

### **2024 Phase 3B**

This alternative includes the construction of a new I-295 NB on-ramp and I-295 SB off-ramp to Main Street (Route 201) opposite the Rte 201/196 Eastern and Western Connectors. As part of this alternative, the existing I-295 NB on-ramp and I-295 SB off-ramp to Route 196 eastbound will be closed. Therefore, Gorrill-Palmer Consulting Engineers, Inc. reassigned all traffic utilizing these ramps to the new ramps on Main Street. The trip reassignment associated with this phase is shown in Figure 35 of Appendix 2.

### **2024 Phase 3C**

This alternative proposes the construction of a northbound off-ramp from I-295 to Topsham Fair Mall Road or the Commercial Connector. Gorrill-Palmer Consulting Engineers, Inc. utilized the commercial gravity model in Table 1 of Appendix 4 to reassign trips for this phase. According to the gravity model, approximately 7% of traffic arriving at the Topsham Fair Mall and the commercial development on the western side of I-295 utilizes the I-295 NB off-ramp to Route 196. Due to the close proximity of the existing I-295 NB off-ramp to the Topsham Fair Mall and the development along the Rte 201/196 Western Connector, approximately 75% of this traffic was reassigned to the new I-295 NB off-ramp to the Topsham Fair Mall Road. The trip reassignment associated with this phase is shown in Figure 37 of Appendix 2.

# Chapter 5

## Operational Evaluation

Gorrill-Palmer Consulting Engineers Inc. completed capacity analyses for each of the alternatives discussed in the previous chapter for all of the study area intersections.

The intersections were analyzed with the Synchro software package. Levels of service rankings are similar to the academic ranking system where an 'A' is very good with little control delay and an 'F' represents very poor conditions. A level of service 'D' and higher is desirable for a signalized intersection.

The following tables summarize the relationship between control delay and level of service for signalized and unsignalized intersections:

**Table 5.1: Level of Service Criteria for Signalized Intersections**

Level of Service	Control Delay per Vehicle (sec)
A	Up to 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	Greater than 80.0

**Table 5.2: Level of Service Criteria for Unsignalized Intersections**

Level of Service	Control Delay per Vehicle (sec)
A	Up to 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	Greater than 50.0

The following table provides a summary of the capacity analyses. Following the table are discussions of the results as they relate to each of the alternatives that were evaluated.

**Table 5.3: Level of Service Summary for Design Phases  
PM Peak Hour**

Intersection	Phase	2009 Existing Conditions with Monument Place Ext	2009 with Short Term Improvements	2024 Existing Conditions with Monument Place Ext	2024 Phase 1A	2024 Phase 1B	2024 Phase 2A	2024 Phase 2B	2024 Phase 3A	2024 Phase 3B	2024 Phase 3C
Main Street/Rte 1 SB Off-ramp (Brunswick)		A	B	E	C	C	C	C	C	C	C
Main Street/Summer St/Bowdoin Mill Rd		F*	F*	F*	E	E	E	E	E	E	E
Main Street/Winter St Spur/Thompson's Ln		F*	<b>A*</b>	F*	<b>F*</b>						
Main Street/Elm St/Elm St Extension		C	<b>B</b>	E	<b>D</b>	D	D	D	D	D	D
Main Street/Monument Place		D	<b>A</b>	D	D	<b>C</b>	C	C	C	C	C
Main Street/Rte 196		D	D	F	F	<b>E</b>	E	E	E	<b>D</b>	D
Main Street/Eagles Way		A	A	F*	<b>A</b>	A	A	A	A	A	A
Main Street/Canam Drive		D	<b>A</b>	F*	<b>B</b>	B	B	B	B	C	C
Rte 201/I-295 NB On-ramp		-	-	-	-	A	A	A	A	A	A
Rte 201/I-295 SB Off-ramp		-	-	-	B	B	B	B	B	B	B
Rte 196/Rte 24 Connector		B	B	B	B	B	B	B	B	B	B
Rte 196/Community Way		E	<b>C</b>	F	<b>C</b>	C	C	C	C	C	C
Rte 196/Hamilton Court		B	B	E	<b>C</b>	<b>B</b>	B	B	B	B	B
Rte 196/Mallett Drive		B	<b>A</b>	F	<b>E</b>	<b>D</b>	<b>B</b>	B	B	<b>A</b>	A
Rte 196/Topsham Fair Mall Rd		D	<b>C</b>	F	F	F	<b>E</b>	E	<b>D</b>	D [E]	D [E]
Rte 196/I-295 NB Ramps		C	C	F	F	F	<b>D</b>	D	<b>C</b>	<b>B [C]</b>	B [B]
Rte 196/I-295 SB Ramps		B	B	F	<b>C</b>	C	C	<b>B</b>	B	<b>A [A]</b>	A [A]
Rte 196/Alt. 5 Connector		B	B	E	E	E	<b>D</b>	D	D	D	D
Rte 196/Meadow Cross Road (Zone I/H)		-	-	F*	<b>C</b>	C	C	C	C	C	C
Rte 196/Zone J		-	-	F*	<b>A</b>	A	A	A	A	A	A
Topsham Fair Mall Rd/Hannaford		C	C	C	C	C	C	<b>B</b>	B	B	B
Topsham Fair Mall Rd/Commercial Connector		A	A	D	D	D	D	<b>C</b>	C	C	C
Topsham Fair Mall Rd/Winter St		A	A	A	A	A	A	A	A	A	A
Monument Place Extension/Monument Place		A	A	A	A	A	A	A	A	A	A
Monument Place Extension/Hamilton Court		A	A	A	A	A	A	A	A	A	A
Monument Place Extension/Mallett Drive		A	A	A	A	A	A	A	A	A	A
I-295 SB On-ramp/Commercial Connector		-	-	-	-	-	-	-	A	A	A
I-295 NB Off-ramp/Commercial Connector		-	-	-	-	-	-	-	-	-	A

Notes:

\* Left turns from the side street will be nearly impossible due to high volumes on major street. Therefore, Synchro can not evaluate the LOS. The LOS shown is based on an average of 5 SimTraffic runs.

[x] – Without improvements as part of 2024 Phase 2A

Bold letters indicate an improved level of service from previous phase

As shown in the table above, several intersections are anticipated to operate at poor levels of service under existing conditions in the years 2009 and 2024, especially the intersections in the Lower Village. With implementation of all of the improvements in each of the improvement phases, all of the intersections within the study area are anticipated to operate at acceptable levels of service with the exception of the intersections of Main Street/Summer Street/Bowdoin Mill and Main Street/Winter Street Spur/Thompson's Lane, which are anticipated to operate at LOS 'E'. Significant improvements to the Lower Village including widening of Main Street to include turning lanes or additional

through lanes would be required to obtain acceptable levels of service at these intersections. However, the proposed improvements are anticipated to reduce delays and queues at these intersections over those experienced today.

The short term improvements proposed to be completed by 2009 include construction of Monument Place Extension, improvements to the intersection of Route 201/Route 196, making Elm Street/Main Street/Elm Street Extension a full four-way intersection, reestablishing the left turns from the Route 1 off-ramp onto Maine Street in Brunswick, opening connection from CanAm Drive to Republic Way, signaling CanAm Drive, and widening the Coastal Connector. The improvements are anticipated to significantly reduce delays in the Lower Village, as well as along Route 196 from Community Way to Mallett Drive.

Phase 1A involves construction of the Route 201/196 Western Connector and the Route 196/River Road Connector. Other improvements included in this phase consist of signaling I-295 SB Ramps at Route 196, signaling Summer Street/Bowdoin Mill/Main Street (if not done in 2009), expanding Route 196 to 4-lanes west of I-295 to Meadow Cross Road, and separate right and left turn lanes exiting Mallet Drive. These improvements are anticipated to decrease delay at the I-295 SB Ramps, providing acceptable levels of service. Although the improvements are not anticipated to change the level of service at the intersection of Route 196/Route 201 or the intersection of Route 196/Topsham Fair Mall Road, delays are anticipated to be reduced significantly at these intersections and along the Route 196 corridor by making these improvements.

Phase 1B proposes construction of the Route 201/196 Eastern Connector and upgrading the intersection of Route 196/Topsham Fair Mall Road/Route 201/196 Eastern Connector. This phase is anticipated to improve the level of service at the intersection of Route 196/Main Street from an 'F' to an 'E'. It is also anticipated to improve the levels of service at the intersections of Route 196 with Mallett Drive and Hamilton Court.

Phase 2A includes construction of an additional westbound through lane on Route 196 to extend from Topsham Fair Mall Road to the I-295 SB Ramps. This improvement is anticipated to improve the level of service at the Topsham Fair Mall Road intersection from an 'F' to an 'E' and at the I-295 NB Ramps from an 'F' to a 'D'. In addition, the improved mobility at these intersections is anticipated to improve operations at the Mallet Drive and Route 201/196 Western Connector intersections.

Phase 2B includes construction of the Commercial Connector between Topsham Fair Mall Road and the development on the western side of I-295. This improvement is anticipated to improve the level of service at the I-295 SB Ramps and at the Topsham Fair Mall Road/Hannaford intersection from a 'C' to

a 'B'. The construction of the connector will also improve operations on Route 196 from Topsham Fair Mall Road to the Route 201/196 Western Connector.

Proposed for Phase 3A is a southbound on-ramp to I-295 from the Commercial Connector. This alternative is anticipated to improve the level of service at the intersection of Route 196/Topsham Fair Mall Road from an 'E' to a 'D' and at the I-285 NB Ramps from a 'D' to a 'C'.

Phase 3B involves the relocation of the I-295 NB on-ramp and SB off-ramp from Route 196 to Route 201. This alternative is anticipated to improve operations at the Route 196/Main Street intersection from level of service 'E' to 'D'. Additionally, the level of service at the intersections of Route 196 with Mallett Drive, I-295 NB Ramps, I-295 SB Ramps are also anticipated to improve.

The construction of a northbound off-ramp from I-295 to the Commercial Connector is proposed for Phase 3C. This alternative is anticipated to improve the level of service at the Route 196/I-295 NB Ramps intersection from a 'C' to a 'B' if the improvements in Phase 2A are not constructed. Although the results do not indicate a change in level of service between Phase 3B and 3A if the Phase 2A improvements are constructed, operations are anticipated to improve along Route 196 from the Topsham Fair Mall Road to the Route 201/196 Western Connector and along Topsham Fair Mall Road.

# Chapter 6

## Conclusions

Gorrill-Palmer Consulting Engineers, Inc. has completed a transportation planning study for the primary travel routes within and through the Town of Topsham. The first task of this study was to provide an analysis of potential alternative accesses to the Topsham Fair Mall. Currently, only one primary access to the mall exists, which is forecast to lead to congestion along the Route 196 corridor. There is a secondary access to Winter Street that recently opened, but is not expected to serve a significant amount of traffic. In addition, traffic growth in the area combined with traffic from previously permitted development at the Mall (Target Store) will result in increased congestion and creates a need for alternative mall access. The purpose of Task 1 was to identify measures to address forecasted congested operations along Route 196, identify the roadway and intersection improvements associated with these alternatives, and assess the impact of implementing the alternative access plans. As a result of Task 1, the Town has elected to proceed with the construction of a connector road from Monument Place to Topsham Fair Mall Road with connections to Hamilton Court and Mallett Drive. This would serve as a parallel access road to the mall. This alternative would also require upgrading the Monument Place/Main Street intersection and restriping the northbound lanes at the intersection of Route 196 and Route 201 to include a left turn lane, a thru lane, and a shared thru/right turn lane.

Task 2 of the project was to perform an analysis of the existing traffic network for the 5 year and 20 year design horizons to identify deficiencies and make recommendations on intersection improvements, road improvements, new construction, traffic calming measures, pedestrian bicycle access/safety, and new roadway infrastructure. Based on feedback from the Town, Transportation Committee, Council, Planning Board, and residents, Gorrill-Palmer Consulting Engineers Inc. developed a series of alternatives to address congestion and safety issues in the Town of Topsham. These alternatives were reduced and prioritized in a phasing scheme as follows:

### **2009 Lower Village**

The 2009 Short Term Phase includes improvements in the Lower Village and to the Route 196 corridor to be made by 2009. The improvements in the Lower Village by year of completion include the following:

**2005-2006:**

- Reconstruct Elm Street Extension to allow two-way traffic and make Elm Street/Main Street intersection a true four-way intersection.
- Eliminate left turns from Main Street northbound onto Winter Street, moving left turns to the signal at Elm Street/Elm Street Extension. Make Winter Street Spur one-way towards Main Street

**2006-2007:**

- Reinstate left turn from Rte 1 SB off-ramp onto Maine Street in Brunswick and signalize the intersection of Maine Street and the Rte 1 SB off-ramp. Prohibit right turns on red from ramp to provide gaps in traffic flow into Lower Village. Install a sign on Route 1 indicating that Route 201 can be accessed from the Coastal Connector.
- Add pedestrian crosswalk from the southern entrance of Bowdoin Mill across Main Street to the sidewalk leading to the Frank Wood Bridge.

**Ongoing:**

- Determine if warrants are met for a traffic signal at Bowdoin Mill and Summer Street. When met, add traffic light and left turn bays on Main Street at Summer Street and Bowdoin Mill. The signals will include pedestrian phasing.

**2009 Upper Village**

Recommendations in the section of Topsham north of the Lower Village include the following:

**2005-2006:**

- Construct a connector road from Monument Place to Topsham Fair Mall Road (to be called Monument Place Extension) with connections to Hamilton Court and Mallett Drive. As part of this improvement, the intersection of Monument Place with Route 196 will be realigned and limited to right turns onto and off of Monument Place only. In addition, improvements would be made to the intersection of Monument Place and Main Street including separate left and right turn lanes exiting Monument Place and extension of the northbound left turn lane from Main Street onto Monument Place. This intersection should be monitored for installation of a traffic signal to be coordinated with the signal at Route 196.
- Lengthen the northbound left turn lane on Main Street at Route 196. Redesignate the center left turn lane as a through lane.
- Modify the median on Route 196 to allow for a longer left turn pocket for traffic heading north on Route 201. Monitor for a possible second left turn lane (eastbound) on Route 196 for traffic heading north on Route 201.

- Stripe lane markings through the intersection of Route 196/Main Street for the left turn from Main Street northbound onto Route 196 westbound.
- Extend the yellow clearance times to four seconds at the intersection of Route 196/Topsham Fair Mall Road.
- Install an advance warning sign of the Route 196/Bypass Drive intersection on Route 196 approximately 0.3 miles south of the intersection on the existing overhead sign structure or immediately north of it. Extend yellow clearance time on the Route 196 approaches to this intersection to four seconds.
- Reduce turning radius for right-turning vehicles on the Bypass Drive approach to the intersection with Route 24.

**2006-2007:**

- Improve pedestrian crossing safety at the Route 196/Route 201 intersection.
- Construct necessary improvements on Main Street, in the vicinity of the new Town Office and Public Safety site (planned for the southwest corner of Main Street/Monument Place).

**2007:**

- Accept CanAm Drive from Republic Drive to Mountain Road as a public way. Open the gate at the end of CanAm Drive.
- Make Eagles Way one-way towards Mt. Ararat High School and provide a connection from Eagles Way to CanAm Drive.
- Signalize the intersection of CanAm Drive and Main Street.

**2008-2009:**

- Widen Route 196 (Coastal Connector) to four lanes from Bypass Drive to Main Street.

**2024 Improvements**

The 2024 Phased improvements focus mainly on the section of Topsham north of the Lower Village surrounding the Topsham Fair Mall and the I-295 ramps. Each of these phases assumes completion of the 2009 improvements and all previous phases. The phasing has been established to provide the best apparent benefit/cost ratio relative to traffic flow. The intent would be to begin addressing these improvements as soon as possible and using this framework as a planning tool with future development. For example, the eastern and western Route 201/Route 196 connectors could be constructed with private funds as their surrounding land areas are developed. Other work, such as widening the Route 196 overpass over I-295 would likely require a combination of private and public funding. Phase 1A through Phase 2B are the most likely to be implemented based on traffic forecast for potential development. Recommendations in Phases

3A through 3C should be revisited in the future as actual development patterns emerge.

### **Phase 1A**

The 2024 Phase 1 includes the following improvements:

- Construct a connector road extending from Route 201 to Route 196 west of I-295 (referred to as the Rte 201/196 Western Connector)
- Construct a connector road extending from Route 196 to River Road thru the proposed commercial development west of I-295 (referred to as the Rte196/River Rd Connector).
- Signalize the intersection of Route 196 and the Route 201/196 Western Connector. Expand Route 196 to four lanes west of I-295 with raised medians within 1,000 feet of signals.
- Signalize the intersection of Route 196 and the I-295 SB Ramps
- Provide separate left and right turn lanes exiting Mallett Drive onto Route 196.
- Signalize intersection of Meadow Cross Road/Route 196 (This signal may be placed at a different location, but should be placed to mitigate the impacts of residential development along Route 196 west of I-295. The signal could be placed at any intersection west of I-295 if a more appropriate location is identified.)

See Figure 5 of Appendix 3

### **2024 Phase 1B**

Phase 1B proposes to construct a connector road extending from Route 201 thru the Crooker Property to Route 196 opposite the Topsham Fair Mall Road (referred to as the Rte 201/196 Eastern Connector). See Figure 6 of Appendix 3.

### **2024 Phase 2A**

The 2024 Phase 2A improvements propose to expand Route 196 westbound to three thru lanes from the intersection with Topsham Fair Mall Road to the I-295 SB on-ramp. The westbound Rte 196 approach at Topsham Fair Mall Road would contain two left-turn lanes, three thru lanes and a right turn lane. The westbound Rte 196 approach at the I-295 NB ramps would contain two thru lanes and a shared thru/right turn lane. The Rte 196 overpass over I-295 would need to be expanded to contain three westbound thru lanes over the bridge. The inner-most thru lane would become a left-turn lane onto the I-295 SB on-ramp on the west side of the bridge. See Figure 7 of Appendix 3.

### **2024 Phase 2B**

The 2024 Phase 2B improvements propose a connector road from Topsham Fair Mall Road to the proposed commercial development on the western side of I-295 (referred to as the Commercial Connector). See Figure 8 of Appendix 3.

### **2024 Phase 3A**

Proposed for 2024 Phase 3A is a southbound on-ramp to I-295 from the Commercial Connector. See Figure 9 of Appendix 3.

### **2024 Phase 3B**

The 2024 Phase 3B improvements include the following improvements to the I-295 ramps:

- Construct a northbound on-ramp from Main Street (Route 201) opposite the Rte 201/196 Eastern Connector to I-295.
- Close existing I-295 NB on-ramp from Route 196.
- Construct I-295 SB off-ramp to Main Street (Route 201) opposite the Rte 201/196 Western Connector.
- Close the existing I-295 SB off-ramp to Route 196 westbound. The I-295 SB off-ramp to Route 196 eastbound would remain open.

See Figure 10 of Appendix 3.

### **2024 Phase 3C**

The 2024 Phase 3C improvements would be construction of an I-295 northbound off-ramp to the Topsham Fair Mall Road. See Figure 11 of Appendix 3.

### **Pedestrian & Bicycle Facilities**

Gorrill-Palmer Consulting Engineers Inc. examined the pedestrian and bicycle facilities in the Town and makes the following recommendations:

- Provide pedestrian signals at the crosswalk on the southern leg of the Main Street/Elm Street/Elm Street Extension intersection.
- Install pedestrian crossing with actuated signals on the southern leg of the Topsham Fair Mall Road/Hannaford intersection.
- Construct a sidewalk on the western side of Main Street from Route 196 to Wilson Street with a crosswalk at the intersections of Wilson Street allowing pedestrians to cross to the eastern sidewalk to access the Lower Village.

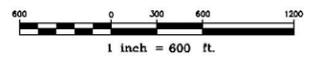
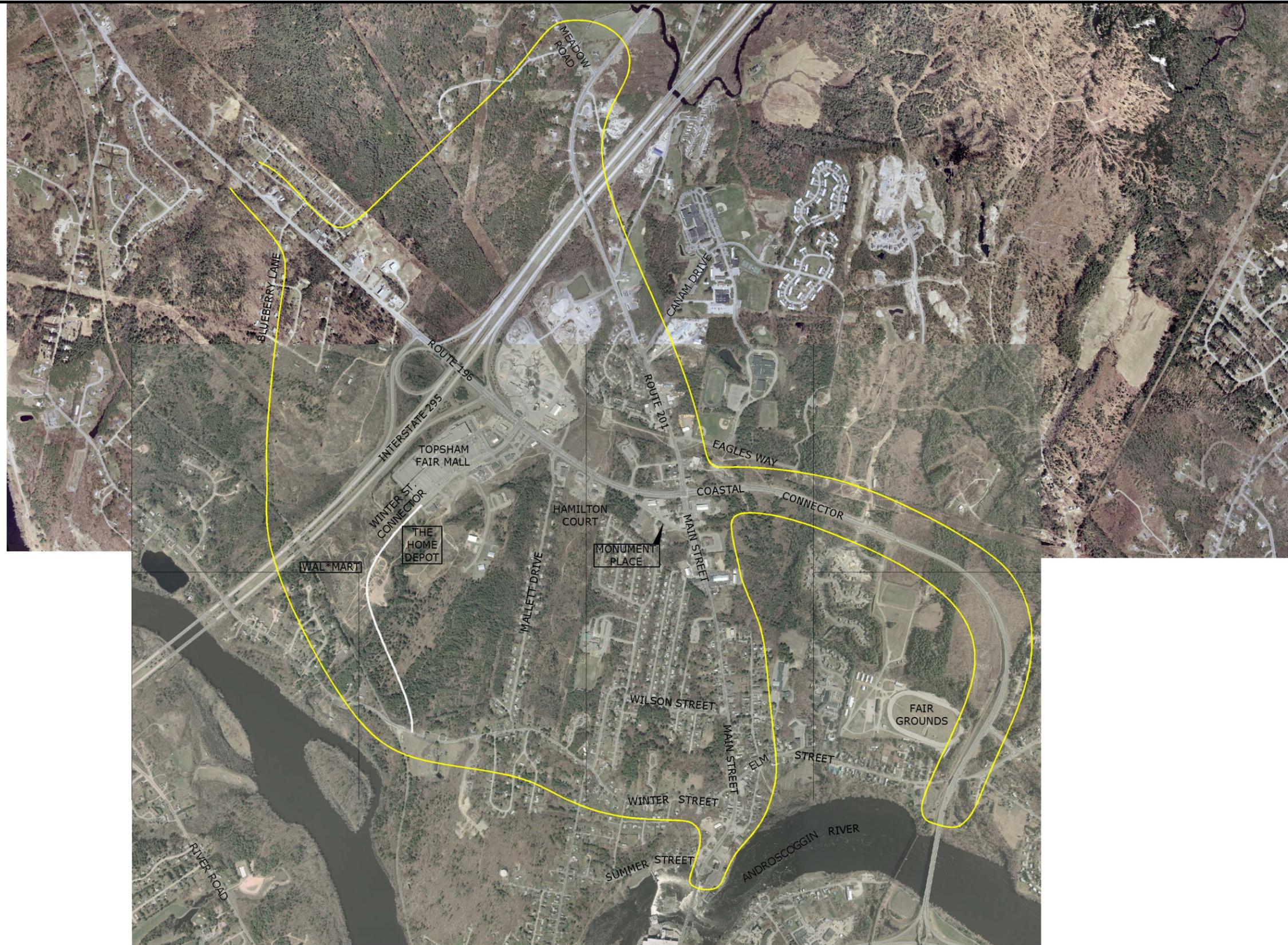
- The Town should study locations for a potential multi-use path along the river extending from River Road to the proposed Water Front Park east of the Lower Village.
- Consider a pedestrian actuated flasher across Main Street in the Lower Village at the crosswalk north of Summer Street.
- Install sidewalks or an off road trail on the southern side of Route 196 from Community Way to Main Street.
- Implement the bike path plan that has already been approved by the Board of Selectmen.
- Develop a Pedestrian and Bicycle Committee to perform regular reviews of pedestrian and bicycle facilities and make recommendations for improvements.
- Develop a Traffic Committee to provide ongoing monitoring of traffic conditions in Topsham. This committee should work with the Pedestrian and Bicycle Committee to make the Town more pedestrian and bicycle friendly.

# *Appendix 1*

Overall Study Area Map.....1.A

Task 1 – Executive Summary

Meeting Notes



Rev.	Date	Revision
-	-	-

Issued For	Date	By
-	-	-

Design: RLB	Draft: DB	Date: JUL 2004
Checked: PAH	Scale: 1"=600'±	Job No.: 974
File Name: 974-aerial-basemap.dwg		
This plan shall not be modified without written permission from Gorrill-Palmer Consulting Engineers, Inc.(GPCEI). Any alterations, authorized or otherwise, shall be at the user's sole risk and without liability to GPCEI.		

**GP** Gorrill-Palmer Consulting Engineers, Inc.  
 Traffic and Civil Engineering Services  
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 E-Mail: mailbox@gorrillpalmer.com

Drawing Name:	<b>Overall Study Area Map</b>
Project:	<b>TOPSHAM TRANSPORTATION PLAN-TASK 1</b>
Client:	<b>Town of Topsham</b> 22 Elm Street, Topsham, ME 04086

Drawing No.	<b>A</b>
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# Executive Summary

Gorrill-Palmer Consulting Engineers, Inc. has been retained by the Town of Topsham to complete a transportation planning study for the primary travel routes around and through the Town. A study area map is provided in Appendix A. The first phase of this study is to provide an analysis of potential alternative accesses to the Topsham Fair Mall. Currently, only one primary access to the mall exists, which is forecast to lead to congestion along the Route 196 corridor. There is a secondary access to Winter Street that recently opened, but is not expected to serve a significant amount of traffic. In addition, traffic growth in the area combined with traffic from previously permitted development at the Mall (Wal-Mart Super Center) will result in increased congestion and creates a need for alternative mall access. The purpose of Task 1 is to identify measures to address forecasted congested operations along Route 196, identify the roadway and intersection improvements associated with these alternatives, and assess the impact of implementing the alternative access plans.

To initiate this project, a public meeting was held on June 21, 2004 allowing members of the community to identify the areas of transportation infrastructure concerns within the Town and to also suggest possible alternative means of access to the mall. The general consensus of the community was that congestion is high on Route 201 creating safety issues for pedestrians and bicycles. In addition, the community expressed a desire to protect existing neighborhoods with the development of alternative access to the mall. The notes from this and several subsequent meetings are provided in Appendix A.

Based on the concerns and suggestions made by the Town and members of the community, Gorrill-Palmer Consulting Engineers, Inc. examined several alternative means of access. The results of this analysis are shown on Drawing B in Appendix A and are summarized below.

- Alternatives analyzed and found to provide acceptable operations:
  - Alternative 1: Connector road from Monument Place to Topsham Fair Mall (This alternative would also require upgrading of the Monument Place intersection with Main Street and restriping of the northbound lanes at the intersection of Route 196 and Route 201 to include a single left-turn lane, a thru lane, and a thru/right-turn lane).
  - Alternative 4B: A connector road from Route 201 to Route 196 east of the Crooker Property in combination with the Mallett Drive connector. However, Alternative 4C may be more effective in reducing congestion at the intersection of Route 196 and Route 201 and improving operations along both corridors.

- Alternative 4C: A connector road from Route 201 to Route 196 east of Crooker Property in combination with the Monument Place connector road.
- Alternative 5: A connector road from Route 201 to Route 196 west of I-295.
- Alternatives analyzed that provide acceptable operations only with an additional eastbound left-turn lane on Route 196 at Route 201:
  - Alternative 3B: Flyover from Hamilton Court over Route 196 at Mallett Drive to Topsham Fair Mall
  - Alternative 6: Relocation of the Crooker Driveway opposite Topsham Fair Mall Road to be opposite Mallett Drive.
- A preliminary study was performed in July using traffic data obtained from other studies in the project area. Based on this preliminary study, the following alternatives were found not to provide acceptable operations and were not explored further:
  - Alternative 2, Mallett Drive Connector: The intersection of Mallett Drive and Route 196 is anticipated to operate at level of service “E” under this alternative. In addition, this alternative does not reduce congestion at the intersection of Route 201 and Route 196. Therefore, a Mallett Drive connector standing alone was eliminated as a potential alternative means of access.
  - Alternative 3A, Jug handle: The Topsham Fair Mall Road intersection is anticipated to operate at level of service “E”. Therefore, a jug handle was eliminated as a potential alternative means of access to the mall.
  - Alternative 4A, Route 201/Route 196 Connector East: The Topsham Fair Mall Road intersection is anticipated to operate at level of service “E”. Therefore, this connector road standing alone was eliminated as a potential alternative means of access. However, this alternative could be viable if the southern end were aligned with Topsham Fair Mall Road rather than Mallett Drive. This could be a long term alternative since the current use of property (Crooker) in this area would not allow such an alignment.

Subsequent meetings with the committee and the public resulted in selection of Alternatives 1 and 5 as primary candidates for further consideration. Analyses show that if Alternative 1 were to be constructed, there would be sufficient capacity at critical intersections to accommodate an additional 450,000 square feet of development at the Mall over what is currently permitted. Alternative 5 would accommodate an additional 250,000 square feet of development at the Mall over what is currently permitted.

Comprehensive Transportation Study  
Town of Topsham  
Public Meeting #1  
June 21, 2004  
Meeting Notes

**Attendees:** Rich Roedner- Town of Topsham, Rebecca Brown- Gorrill-Palmer, Peter Hedrich-Gorrill-Palmer

**Groups:**

Wes Thames	Dave Fuller	Fred Hahn	Dana Cary
Chris Dwinal	Don Russell	Connie Carlson	Ruth Peck
Melissa Jones	Charles Derr	Gerry LaRoche	Louise Johnson
Jason Jones	Jane Scease	Jane Johnson	Jessica Miller
			Jane & Bill Littlefield

Michelle Jones	Ed Caron
Jim Trusisni	Bill Brigham
Ron Riehdeay	Brian Burne
Jim Howard	Cindi Burne
Dewey Nelson	Sue Spann

After an initial brief presentation of the goals and anticipated scope of services for the study, the group broke up into the following table groups to discuss transportation in Town in general and to identify their thoughts and ideas for improvements. The following is a summary of their ideas:

Group 1 – Michelle Jones

- Ramps @ 201 and I-95
- New Road Thru Crooker from 201 to Mall
- Coastal Connector – 4 lanes
- Real Traffic counts (The Home Depot traffic)
- Lower Village roundabout
- 30 minute mile returning on Main Street/Frank Wood Bridge
- Connection from Topsham Fair Mall south with a bridge across river into Brunswick
- Rebuild Black Bridge and use railroad as connection to Topsham Fair Mall as bike and pedestrian access
- No one in group thinks the proposed mall connector is a good idea

Group 2 - Dave Fuller

- Connector Road Options
  - o Monument Place to Topsham Fair Mall
  - o Hamilton Court to TFM
  - o Mallett to TFM
- Roundabout at Mallet with sidewalks
- Add lanes to Route 196
- Jug handle at Crooker
- Reroute 196 around Crooker, using current Route 196 as a local road and mall access only

- Connector road from Route 201 thru Crooker to TFM/Route 196
- Make Winter/Main/Elm a 4-way, straighten Winter and close Winter St. spur across from Michaud's – use this area for parking
- Summer/Main St
  - o Left-turn and pedestrian moves are difficult
  - o Connect Summer St to Winter St behind the Picture Framer
  - o Install a traffic signal
- Green/Main St
  - o Consider roundabout
  - o Make bike/pedestrian friendly
- Frontage road for Route 196 west of I-295
- Trail along river to library, river access lower village to library
- Address parking problem in Main/Green/Winter/Elm Street area
- Widen Coastal Connector to 4 lanes
- Post and Enforce low speed limits
- More boat access on river above dam
- Reopen Route 201 ramps to I-295

Group 3 – Dana Cary (3 of the six in the group)

- Green Street – speeds – “Dead End” so not to be used as a connector
- Poor visibility on Winter Street to see the entrance to Topsham Fair Mall – needs more signage
- Roundabout at entrance to Mall
- Jug handle into mall
- Speed on Main Street
- Left turn onto Winter Street holds up traffic
- Pedestrian consideration on Route 196
- Wider 196 and coastal connector
- Look for more bike routes
- Make Winter Street a parallel road to Route 196 or bypass – widen and enhance with bike and pedestrian paths

Group 4 – (3 of the six at the Dana Cary table)

- Exit ramp into mall from I-295
- Main Street needs to be made safer for pedestrians – speed bumps, blinking ped lights, lit crossings
- Green Street – speeds are a problem, narrow street with no sidewalk, increased traffic, used as a cut-through, make one-way or dead-end, Green St to Elm St needs “mirror” across street to see Elm St traffic coming from Main St
- Make Coastal Connector 4 lanes
- What is the intent of Winter Street entrance – needs signage – people miss it
- Want two right turn lanes into mall
- Pedestrian crossing need in lower main
- Mill traffic – light?
- Overpass/Underpass at Mall
- 4 lanes on connector - signal timing increased to get thru AM and PM peak
- Sidewalk/bike lanes on Frank Wood Bridge

## Group 5 - Fred Hahn

### Pedestrian issues

- Mallet Drive
- Winter Street from Bridge street to Mall
- Topsham Fair Mall Road – first two intersections
- Sidewalks Route 201 from Canam to Eagles Way– near school for kids coming down to Mall and DQ
- Lower Village crosswalks
- Provide a pedestrian bridge at Summer/Bowdoin Mill
- Bike Lane on Coastal connector not marked – continue bike lane to bike path
- Crosswalk at Highlands not visible
- Arby's entrance – dangerous for pedestrians – railing is on inside instead of traffic side

### Traffic

- Summer Street and Main Street connection should return to how it use to be
- Elm St. and Winter Street intersection – left turns
- Bridge Street connecting I-295 to Mall
- Turning lanes at Elm & Winter Streets at light
- Revise new Summer Street access to behind old gas station.
- ATV danger at Mallet / Crooker
- Jug handle
- Reopen Route 201/I-295 Ramps
- Provide a bridge or tunnel across I-295 to connect TFM to west side commercial area
- Connect Canam Drive to village and to Coastal Connector, providing bike and pedestrian paths
- Connect Route 196 to River Road thru commercial development to the west of I-295

## Group 6 – Sue Spann

- Trail crossings – ATV, bike, ped, etc.
- Concern about traffic on Winter Street with new access to TFM – Winter Street needs updating
- Speed at Mallet Drive is an issue
- Would like to see focus on non-vehicular traffic
- Direct access from I-295 to TFM
- Connecting 201 to 196 thru Crooker or north of I-295
- Connector from Monument to TFM or from Hamilton Court to TFM
- Bike path of Elm Street
- Encourage traffic to use Mallet and other streets.
- Rebuild Black Bridge to connect to Brunswick up old RR tracks into mall and include Pedestrian and bike facilities – Get traffic off Mallet, Hamilton, etc.
- Lower village concerns
- Speed concerns on Mallett and Birch Ridge
- Like the idea of the parallel connector into TFM
- Replace the RR Bridge on Elm Street – too narrow of an underpass – difficult for pedestrians and bikes to pass under bridge
- Investigate trolleys and buses – Bus service from Brunswick to Topsham – potentially a Brunswick, Bath, Topsham bus route

## Group 7 – Wes Thames

- Protect existing neighborhood with other entrances to mall by buffer, etc.
- Reopen Route 201/I-295 ramps
- Mall only ramps south of existing ramps
- Route 201 to Route 196 connection on west side of I-295
- Connection from 201 to Route 196 thru Crooker
- Mallet Drive jug-handle
- Connection from mall to west side of I-295
- Summer to Main Street – can't make left turn - signalize
- Lower Winter Street – make it a one-way
- Mallet and Bridge Street pedestrian access
- Provide traffic calming on Mallett, Winter and Bridge
- Traffic calming measures on Mallett, Winter, and Bridge Streets
- Use existing RR bed to access TFM from Brunswick via a bike/pedestrian bath
- Make Coastal Connector 4 lanes
- Roundabout at Bridge/Winter/Bickford
- Too many lights on Coastal Connector – not really a bypass
- Provide roundabouts to slow and move traffic better

A member of this group also provided a separate previously prepared list as follows:

- No sidewalks
- HUGE traffic increase
- Speeding traffic
- Trouble making left turns – Extremely difficult to turn left out of Summer Street and Wilson Street on to Main Street. No left turn from Winter Street, and impossible to turn left from the black one-car bridge anytime except the winter season.
- Cars do not stop for pedestrians on or off crosswalks
- You can not exit the Bowdoin Mill complex in a vehicle or on foot without difficulty
- There is no left turn pocket on Main Street to turn on to Summer Street. This causes traffic to back up and stop.
- Now that the Topsham Fair Mall Road has opened to the new exit on Winter Street, traffic has increased and will continue to increase as people become aware of the new road and new stores come on and open up.
- People travel River Road/Winter Street/ Mallet Drive and Bridge Street to avoid all the traffic lights on Main Street and 196.
- No left turn pocket at 21 Main Street, Michaud's Market, people continue to turn left here stopping traffic instead of the new designated left turn at the top of the hill.
- With the new "improvements" to Main Street we are back to the 30 minute mile.
- What will Summer Street and Bridge Street do with the traffic increase once the 150 car parking lot goes in?
- Exiting Summer Street on to Main Street, if someone is turning left or going straight no other traffic can move. Summer Street needs a left turn and straight lane and a right turn only lane.
- Traffic flowed better when the old Summer Street was open. You were faced with 2, 3-way intersections instead of one very congested 4-way intersection.
- Too much traffic on lower Main Street by Summer Street. Need a traffic light to ease congestion, or turn the roads and rules back to the previous way.
- What will happen to the traffic if the Frank J. Perry Woods bridge (green bridge) and the black one-car bridge on Bridge Street closes or needs repair?

More thoughts from the overall group after hearing the above individual group reports:

- Bus from Brunswick downtown to Mall
- Bath, Brunswick, Topsham bridge
- Public likes Black Bridge rebuilding to connect to mall (owned by Guilford)
- Bridge street is a problem (dangerous) – major connector to Brunswick

Gorrill-Palmer Consulting Engineers, Inc. also has on file the annotated aerial maps and lists prepared by each group. All of the information on these documents has been summarized above.

Transportation Study  
Town of Topsham  
Public Meeting #2  
September 9, 2004  
Meeting Notes

**Attendance:** Gary Brown, David Fuller, Peter Hedrich, Dave Jacobs, John Larson, James Howard, Bruce & Joanne Allen, Liz Armstrong, Bob Black, Kevin Kelley, Ron Riendeau, James Trusiani, Roland Breton, Steve Pelletier, Michael Labbe, Denny Nelson, Sherry Thacher, Mark Pagean, Phyllis Ponziani, Jeff Steinert, Jim & Marie Pennell, Brian Burne, Linda Mallard, Kimberly Chonka, Ken Brillat, Bob & Carol Williams, Cyndi Burne, Anthony & Michelle DelGaudio, D. Pratt, Lee Gagne, Ron Bisson (Approximately 15 people did not sign in, based on the count of the straw pole)

The purpose of this meeting was to present the results of Task 1, Mall Access Alternatives and seek comments from the public. Dave and Peter presented the results of the analysis and work done with the committee to date and the options remaining for consideration. The following is a summary of the public comment:

1. Reopen the old Route 201 interchange.
  - a. To address the closeness of the 201 southbound on ramp and 196 southbound off ramp, close the westbound 196 off ramp and send them off at the clover loop that currently serves only the i-295 southbound to 196 eastbound traffic. Any new ramp would need to meet Federal Highway criteria for separation and “urban density”.
  - b. An alternative would be to relocate the Route 196 north side ramps to Route 201, which would compliment the potential east side (4A) and west side (5) connectors.
  - c. This alternative would need to be considered a long-term alternative, not suitable for the Task 1 objective, since the time frames for interstate work tend to be long. However, any selected alternative should consider the possibility of ramps at Route 201.
  - d. Would implementation of alternative 5 preclude the future opening of a southbound on ramp from Route 201? From discussions, opening the ramp does not appear feasible due to proximity to the 196 interchange and 5 would essentially accomplish this by delivering traffic to the southbound ramp at Route 196.
2. The east side connector (4A) seems preferable to the west side connector (5) for traffic in the Canam Road area. Perhaps the Town should wait for the Crooker property to become available so that the east side connector could be implemented in its preferred location (to align with Topsham Fair Mall Road rather than Mallett Drive). Discussions pointed out that the data indicates that traffic diversion for the west side connector from the flow north/west of I-295 would be sufficient to achieve the Task 1 objective and the short term time frame does not allow waiting for option 4A to be viable in its preferred location.
3. The Mallett Drive Connector looks easy compared to the other alternatives. However, this alternative would create a 5-leg intersection and would require dual turn lanes on 196 as well as additional improvements at the Main/Coastal Connector intersection.
4. Questions were raised regarding how the roads would be paid for and how right of way would be obtained. Dave explained that the impact fees and revenues from the tax increment finance (TIF) district would pay for the roads over time, and right of way would be obtained through negotiation with property owners.

5. Concerns were raised regarding conformity with the comprehensive plan and whether the alternatives, 5 in particular, would encourage growth in the wrong areas or too quickly. Dave explained that the land through which 5 would pass is already zoned for commercial and residential development and the zoning would not be proposed to change. Alternative 5 would not likely cause commercial development at the 201 end since there is no infrastructure or zoning for it, and the traffic levels would keep development in the Route 196 interchange area.
6. Comparisons of Alternatives 5 and 1 were made. Namely, would alternative 1 be more easily permitted from an environmental perspective, and would 1 direct more development to the Mall area as opposed to 5 which may draw it across to the west side of the interstate? Also, 5 appears to be more costly than 1. We responded that 1 may permit more easily than 5, but involves more land use issues that could slow it down. With regard to directing development, alternative 1 could possibly focus on the mall area, but the zone on the west is commercial and will likely develop in an independent time frame. With regard to costs, those presented do not include right of way, which may be considerably more expensive for 1 versus 5.
7. Straw poles were taken with the following results:
  - a. By show of hands 15 favor alternative 5, 24 favor alternative 1, 11 abstain
  - b. 20 would like us to pursue alternative access to I-295 for long-term solutions

The meeting was closed with an overview of the process that remains to be completed, which is the town wide study work that will initially focus on south Main Street.

## MEETING NOTES

**By:** Peter Hedrich  
**Date:** July 1, 2004  
**Subject:** Topsham Comprehensive Transportation Plan  
Committee Meeting to Discuss Mall Access  
**Attendance:** Jane Johnson, Dave Fuller, Gary Brown, Wes Thames, Jim Howard, Dewey Nelson,  
Fred Hahn, Michelle Jones, Sue Spann, and Peter Hedrich

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The purpose of this meeting was to discuss the alternatives to address capacity constraints for traffic accessing the Mall area. Peter presented a plan showing seven alternatives that could separately or collectively potentially improve access to the Mall. These are shown on the attached drawing. The group discussed the alternatives as follows:

1. Alternatives 1 and 2 which are the parallel connector and the Mallett one-way connector were generally seen as acceptable alternatives to evaluate further. Alternative 1 would address the entire Route 196 corridor from Main Street to the Mall, whereas Alternative 2 would address primarily the Mall intersection. Alternative 1 needs to be extended to the Main Street intersection, and consider the proposed Town Hall, Fire Station and intersection improvements at the Monument/Main Street intersection.
2. Alternative 3 is the jug handle through the Crooker property. This was seen as a possibility, but there were concerns about impacts on Crooker and the extent to which this alternative would actually address the problem. However, this alternative will be evaluated from a traffic perspective to see the affect that it would have. If it is pursued further, the take off point from Route 196 would need to be shifted further to the east toward or beyond Mallett Drive.
3. Alternatives 4 & 5 would provide connections from Route 201 to Route 196 opposite Mallett and TFMR respectively. Alternative 5 does not seem viable due to the disruption to the Crooker site. We should also consider the potential benefits of a connector between 201 and 196 on the west side of I-295. Alternative 4 would have limited benefit unless it was completed in combination with Alternative 2 (Mallett Connector), but will be investigated for its benefit to the Main Street/Route 201 intersection.
4. Consider a flyover for left turning traffic. The most practical location appears to be a take-off point in the vicinity of Hamilton Court and a landing southwest of Mallett Drive and then connecting through to TFMR as suggested for Alternatives 1 and 2. This would essentially be a grade-separated jug handle.
5. Alternatives 6 & 7 consider access from the lower village, specifically left turns from Main onto Winter. The role of the Winter Street access to the Mall was discussed with regard to signing this route and the affect it would have on the residential character as well as the overall safety of the street. Although Winter Street is a minor collector roadway, the consensus of the group was to facilitate the use of the Winter Street access, perhaps by providing a left turn lane on Main Street, but not to sign it as an alternative route. For purposes of the Mall access evaluation, we will assume that some traffic will use Winter Street, but that the majority of traffic from the

south on Main Street will use Route 196. We will be able to gauge this better once the license plate study is done in the end of July.

6. The group did discuss the lower village in more detail with concerns expressed regarding the difficulty of making left turns onto Main Street, and the expectation that it will only get more difficult as proposed projects in this area come on line. The potential for left turn access from Winter to Main at the signalized Elm Street intersection was discussed as well as the potential for a signal/roundabout at Summer/Bowdoin Mill. Steep grades are a concern in this area. Generally, this area needs to be carefully evaluated for access in the long-term.

Although the short-term objective is to identify alternative means of access to the Mall, the group was intent on being sure that the short-term measures are carefully considered in the overall planning effort for the Town.

C: Transportation Committee

PAH/admin/jn974/committeemeetingnotes7-1-04

## MEETING NOTES

**By:** Peter Hedrich  
**Date:** August 16, 2004  
**Subject:** Topsham Comprehensive Transportation Plan  
Committee Meeting to Discuss Mall Access  
**Attendance:** Dave Fuller, Gary Brown, Wes Thames, Jane Scease, Dana Cary  
Michelle Jones, Rich Roedner and Peter Hedrich

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The purpose of this meeting was to review the results of the analysis contained in the preliminary task 1 report. Peter presented a plan showing six alternatives that could provide acceptable traffic operations along the Route 196 corridor from Main Street to Topsham Fair Mall Road. The group discussed the alternatives as follows:

- Alternative 1, Monument Place Connector plus Main Street/Coastal Connector intersection improvements:** This alternative provides acceptable operations and offers the long-term benefit of “back” access to the commercial property along the Route 196 corridor. This is considered a viable alternative with moderate complexity with regard to right-of-way acquisition. Gorrill-Palmer Consulting Engineers, Inc. should investigate whether the Main Street/Coastal Connector intersection improvements can be pared back to restriping the northbound approach to left-through-right rather than adding a left turn lane. Also, the intersection of Monument Place at Main Street should be further reviewed to determine the extent of improvements required in conjunction with the new Town Hall location (length of turn lanes, signalization, etc.).
- Alternative 3B, Flyover at Mallett Drive:** This alternative is considered impractical due to cost and excessive property impacts.
- Alternative 4B, Route 201/196 Connector – East plus Mallett Drive Connector:** This would provide acceptable operations, but the Mallett Drive Connector configuration should be such that impacts to property are minimized. The 201/196 connector could also provide future access to the Crooker property should it eventually be commercially developed.
- Alternative 4C, Route 201/196 Connector – East, plus Monument Place Connector:** This is similar to the above but adds the long-term benefit previously noted for Alternative 1.
- Alternative 5, Route 201/196 Connector – West:** Provides acceptable operations and has the long-term benefit of providing access to future commercial development as well as a means to handle long-term increases in Route 201 traffic north of Town. Right of way acquisition potential is eased by the prospect of improved access to the properties involved.
- Alternative 6, Close Crooker Driveway plus Main Street/Coastal Connector intersection improvements:** This alternative is not considered desirable due to impacts on the existing business and the fact that it may not be compatible with the long-term plan along the corridor (e.g. this driveway may be the primary access to future commercial development of the property).

Therefore, the alternatives described in items 1, 3, 4, and 5 are considered viable for further consideration. Gorrill-Palmer Consulting Engineers, Inc. will evaluate the points raised in item 1 and report back to the committee. A committee meeting date of August 30<sup>th</sup> has been set with a suggested public meeting date of September 9<sup>th</sup>.

C: Transportation Committee

## MEETING NOTES

**By:** Peter Hedrich  
**Date:** August 30, 2004  
**Subject:** Topsham Comprehensive Transportation Plan  
Committee Meeting to Discuss Final Mall Access Alternatives  
**Attendance:** Dave Fuller, Wes Thames, Jane Johnson, Fred Hahn, Jim Howard  
Michelle Jones and Peter Hedrich

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The purpose of this meeting was to further discuss the remaining viable alternatives, considering the final analysis. Gorrill-Palmer also updated the analysis for the newly collected traffic volumes and license plate data. The updated analysis is for the year 2007 and includes Wal-Mart, DMC Realty, and an additional 200,000 square feet of development at the Mall. Peter presented a plan showing the westerly connector (Alternative 5) and Mallett Drive connector (Alternative 2) in more detail. After discussion of the alternatives, the group reached consensus with the following order of preference:

1. **Alternative 5, Route 201/196 Connector – West:** Provides acceptable operations and has the long-term benefit of providing access to future commercial development as well as a means to handle long-term increases in Route 201 traffic north of Town. Right of way acquisition potential is eased by the prospect of improved access to the properties involved. This alternative includes signalizing the new Route 196 intersection, providing turn lanes on Route 196 and extending the 4 lanes on Route 196 from the I-295 interchange to west of the new intersection. Gorrill-Palmer will obtain wetlands mapping from Woodlot Alternatives and prepare a revised alignment that reflects the wetland locations. No other improvements would be required to achieve acceptable traffic operations.
2. **Alternative 1, Monument Place Connector:** This alternative was seen as a valuable future improvement that would provide relief to Route 196 and provide cross-access between various businesses, relocated Town Hall and the Mall. However, it dropped to the second choice due to the strength of Alternative 5 to serve as a relief to existing capacity constraints along 196 and provide access to more developable commercial and residential land. Additionally, Alternative 5 appears to involve less complex right of way acquisition issues. Alternative 1 alone would require a second EB left turn lane on 196 at Main Street or an additional NB through-right lane on Main at 196. The intersection improvements would not be needed if Alternative 5 is in place when Alternative 1 is constructed, under the forecast volume conditions.
3. **Alternative 4B, Route 201/196 Connector – East plus Mallett Drive Connector:** This is considered a longer term improvement that may be more useful in the future. The Mallett Drive Connector was not considered a desirable aspect of this alternative due to its alignment and somewhat awkward intersection with Route 196/Mallett Drive. The 201/196 connector portion of this alternative may be beneficial if it aligns directly with the existing Topsham Fair Mall Road. This could occur if the Crooker site is developed commercially in the future.

Other items of discussion included: Conflict between left and right turning traffic entering the SB I-295 ramp; alleviating the accident problem at the gas station west of I-295 (driveway connection to Alt 5?); allowing right turns out from the currently gated driveway west of Hamilton Court; and speed issues on lower Main Street.

Gorrill-Palmer Consulting Engineers, Inc. will prepare a presentation of the process to date, the recommended alternatives and the future course of work on the project to be presented at the September 9<sup>th</sup> public meeting. A committee meeting date of September 27<sup>th</sup> has been set to continue with the next tasks of the project, which will begin with a focus on lower Main Street. Representatives from Brunswick have been invited to attend this meeting.

C: Transportation Committee

## MEETING NOTES

**By:** Peter Hedrich  
**Date:** September 27, 2004  
**Subject:** Topsham Comprehensive Transportation Plan  
Committee Meeting to Discuss Final Mall Access Alternatives and Lower Main Street  
**Attendance:** Dave Fuller, Wes Thames, Jane Johnson, Fred Hahn, Jim Howard, Jane Scease, Dwayne Nelson, Michelle Jones, Rich Roedner, Gary Brown, Dana Cary, Matt Eddy (Brunswick) and Peter Hedrich

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The purpose of this meeting was to discuss the results of the September 9<sup>th</sup> public meeting relative to mall access alternatives and to discuss lower Main Street with Matt Eddy. We reviewed costs associated with Alternatives 1 & 5 as well as opinions expressed by the community at the public meeting. Items of discussion were as follows:

### *Mall Access*

1. Consensus was to stay with Alternative 5 as the preferred option after discussing the possibility of providing the public with choices on the referendum question. The committee recognizes that the group present at the public meeting preferred Alternative 1 based on a straw pole, but felt that the residents who would not favor Alternative 1 were not at the meeting. The committee also felt that Alternative 5 may proceed more easily than Alternative 1.
2. The committee discussed the fact that although Alternative 5 is preferred to proceed first, Alternatives 1 and 4A (in an alignment opposite Topsham Fair Mall Road) are likely parts of the long-term transportation system for the Town.
3. Alternative 5 includes work along Route 196 such as extending the four lane section from the westerly I-295 ramps to west of the Alternative 5 intersection, left and right turn lanes on Route 196 and signalization of the new Alternative 5/Route 196 intersection. This work would be done as part of the connector project; however, the committee would like to pursue MaineDOT participation in the extension of the 4-lane section since there is currently a problem with a very short merge area westbound and with the configuration of the southbound on ramp geometry. This portion of the work is included at a cost of \$700,000, of which the Town share would be \$105,000 with MaineDOT participation.
4. Alternative 1 may include a signal at Main Street/Monument Place if Town Hall moves and driveways, including the post office on the opposite side of Main, are consolidated opposite Monument Place. The signal would be desirable for the Fire Station as well as a bicycle crossing point.
5. The committee will proceed as follows with finalizing Task 1:
  - a. Rich to draft a summary of findings and recommendations.
  - b. Dave to quantify right of way costs to the extent possible.
  - c. Committee to consider the findings at a meeting on October 4<sup>th</sup> to formulate an approach to bring to the Selectmen.
  - d. Meet with the selectmen to gain consensus on proceeding to Town vote.

### *Lower Main Street*

1. Brunswick has a proposal in to MaineDOT to add the SB Route 1 off ramp left turn and signal back onto Main Street. This would address drivers who are currently looping from Route 1 into Topsham and down Main Street as well as those performing U-turns in the fish ladder driveway and at Summer Street.

2. Brunswick is contemplating reinstating two-way operation along Pleasant Street from Maine to Mill Street.
3. Bowdoin Mill will be going through the traffic movement permit process for their current expansion plans.
4. There is a proposal to create a parking lot for approximately 40 cars on the fire station lot.
5. Concerns expressed regarding the amount and speed of traffic that is now using Summer Street and Bridge Street to get to the back access to the mall. One measure suggested to reduce the potential of commercial traffic through this area was to prohibit right turns out of the new 159 space parking lot on Summer Street.
6. Ideas for lower Main are as follows:
  - a. Provide left turn access from the west by making Elm a full 4-way intersection.
  - b. Prohibit left turns northbound at Winter Street since there is no turn lane and stopped vehicles cause back-ups.
  - c. Provide a connection between Winter Street and the new Summer Street parking lot.
  - d. Make Green Street one way northbound.
  - e. Make the Black Bridge one way eastbound and possibly restrict it to right turns out only.
  - f. Provide a roundabout at the intersection of Bridge/Bickford/Winter.

The committee expressed that it is time to begin neighborhood meetings toward developing the Town's overall transportation plan.

#### C: Transportation Committee

## MEETING NOTES

**By:** Rebecca Brown  
**Date:** November 29, 2004  
**Subject:** Topsham Comprehensive Transportation Plan  
Committee Meeting to Discuss Final Mall Access Alternatives and Lower Village  
**Attendance:** Dave Fuller, Wes Thames, Jane Johnson, Fred Hahn, Jim Howard, Jane Scease, Sue Spann,  
Michelle Jones, Rich Roedner, Dana Cary, and Rebecca Brown

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The purpose of this meeting was to reach a consensus on which of the Alternative Mall Access options would be presented to the Board of Selectmen at the December 2 meeting. In addition, the improvement alternatives for the Lower Village were discussed to gain feedback on which options may be more feasible. Items of discussion were as follows:

### *Mall Access*

1. Rich began the meeting by stating that the committee needs to come to resolution on which alternative to recommend as part of Task 1, and asked whether further discussion was needed or if the committee would like to vote. Several committee members felt that discussion of comments made at public meetings was necessary before voting on an alternative. Michelle presented notes taken at two of the public meetings that summarized many of the concerns voiced by residents. A main concern from the Monday, November 22 meeting appeared to be that the Monument Place Extension (Alternative 1) may lead to more growth at the mall, and as a result, more traffic in Topsham. Michelle expressed some residents' feelings that adding more development to the mall area would create a large traffic issue and that this type of development is not wanted for Topsham.
2. Michelle asked why the committee was focusing on the mall area when problems exist all over the Town, particularly in the Lower Village. Rich pointed out that the purpose of this meeting was to discuss Task 1, which is aimed only at addressing alternative access to the mall.
3. Jane Johnson pointed out that a home on Mallett Drive near RiteAid has been on the market for a long time and the owner has concerns about the value of the home if the Monument Place Extension were to be constructed. When the RiteAid was constructed, several improvements were promised to the home owner that never occurred. Jane felt that if the Monument Place Extension were built, it may actually benefit the home owner and raise the value of the property.
4. Wes pointed out that Option 1 (Monument Place Extension) addresses four key problems that exist today, even if no more development occurs at the mall. These areas include the intersection of Route 201 and Route 196; Hamilton Court; Mallett Drive, which is believed to operate better now since the opening of the rear entrance to the mall than it has in years; and Topsham Fair Mall Road.
5. Rich and Jane Scease pointed out that the Town has voted several times and approved further development at the mall.
6. Michelle inquired as to when the Transportation Plan would be completed and questioned whether the committee should wait until the plan is completed before trying to get approval for either Option by the Board of Selectmen.
7. Fred stated that approximately 21% of the tax base in Topsham comes from commercial businesses and it is estimated that it could rise to as much as 30% if the mall area continues to develop. Fred also stated that his property taxes are much higher than they were when he lived in Brunswick and he gets fewer services than in Brunswick. If development occurs, taxes will rise slower. Fred also pointed out that

development is going to occur no matter what and that he would rather have the infrastructure in place to accommodate the development before it occurs. Furthermore, both options are likely going to be built regardless of which option is built first. Fred felt that the Monument Place Extension was likely to get far more use than Option 5.

8. Michelle was concerned that several studies have shown that “big boxes” cost Towns money. Jim responded that we need to address the problem that is there today.
9. Jane Scease pointed out that the committee needs to come to a consensus and conclusion about which option to recommend for alternative access to the mall, while recognizing the concerns of the minority.
10. Sue pointed out that the issue is not really development. The issue is that a problem currently exists and it needs to be fixed. Sue also noted that at the Highlands meeting, the question was raised by a resident, “Why are we talking about one or the other; why are we not talking about both?”
11. Dave asked whether either option would affect traffic in the Lower Village and whether projections have been completed to estimate future traffic in the area. Rebecca responded that the area of impact for both alternatives is on Route 196 from Route 201 to the I-295 ramps, and that neither option will have a noticeable impact on the Lower Village. Rebecca also responded that GPCEI has completed projections for the 2009 and 2024 years of the traffic in the network based on feedback from Rich regarding areas of potential future development.
12. After deliberation over the purpose of this meeting and Task 1, Rich read the scope of services stating that Task 1 is related to finding alternative access to the mall and was to be completed as an initial task while the remainder of the study was being completed.
13. Jane Johnson noted that a Target coming to the Topsham Fair Mall is not going to turn Topsham into a South Portland. She noted that people are still going to go to Auburn and Augusta and other places for retail, even though Target may draw some additional traffic. Michelle agreed that a single Target might not turn Topsham into South Portland, but that an additional 400,000 s.f. of retail might. Rich pointed out that this 400,000 s.f. was included in the report as a retail equivalent, but is likely to include small shops, offices, and restaurants that do not generate as much traffic. In addition, much of the traffic will be shared between developments at the mall. Rich also pointed out that Task 1 is not deciding whether or not development should occur at the mall. Task 1 is related to addressing the existing problem. Option 1 provides more capacity should additional development occur at the mall, but whether development occurs is not up to this committee.
14. Fred asked whether any information had been gathered as to the number of vehicles coming from the I-295 ramps and Lewiston, and entering the mall. Rebecca responded that GPCEI obtained data on traffic exiting the mall and going to the ramps, but not coming into the mall from the ramps. Rich pointed out that at the time that the license plate survey was completed, the locations of the survey were based on recommendations from MaineDOT as to where they would like to have data collected. After completing the study, it was found that there were some holes in the MaineDOT recommendations regarding traffic patterns that the Town would have liked to have had identified.
15. The question was raised as to where the Monument Place Extension will go and whether it will go through neighborhoods. Jane Johnson stated that the connector was designed to skirt neighborhoods. Wes noted that the connector would go through the gravel pits where ATV’s ride today and that this area will be graded.
16. Rich suggested a vote on recommending Option 1 – Monument Place Extension, while echoing the concerns of the Town in regards to Mallett Drive and future development. This decision is based on feedback from the public and additional information from GPCEI regarding the capacity of each option. The vote showed 4 in favor of Option 1, 1 opposed to Option 1, and 1 abstained from voting.
17. Jane Johnson asked whether the Town could write an article to go into the paper so that the facts of the article are accurate. Jane also pointed out that the committee needs to show the Town residents that they are active and doing something about the issues. Jane further noted that not everyone reads the paper, so

the committee may want to show something on television to inform the residents on the status of the study and of upcoming meetings.

### ***Lower Village***

1. The question was raised whether Winter Street could be made two-way in order to allow left-turning vehicles access to the signal at Elm Street/Route 201. Wes noted that this has been looked at in the past. Today the grade is about 9%. With a retaining wall and removal of the Lord House (white home on southwest corner), the grade could be reduced to roughly 6-6.5%. By constructing a 7-8 foot wall, the grade could be made better than it is on Main Street. Several committee members expressed that they would like to see Winter Street become two-way, especially since the Route 24/Route 196 connector was opened, to allow access to Route 201, Route 196, and Route 24 from the Lower Village. Wes also stated that the Lord House is not a historic landmark.
2. Rich pointed out that the Bowdoin Mill has applied for a traffic permit. This development would have access to the Route 201/Summer Street intersection, which could affect whether or not a signal warrant is met at this location.
3. Sue asked whether the traffic light at Summer Street could be flashing for most of the day and only operate green and red during the peak hours (7-9am and 3-7pm). Several committee members did not feel that this was the most appropriate use of the signal. Wes pointed out that you do not want a situation in which traffic using the signal in the middle of the day is not able to anticipate whether the signal will be flashing or changing. A more appropriate solution is for the signal to be semi-actuated (with a trip on Summer Street and Bowdoin Mill) and have Main Street priority.
4. Michelle asked how a decision to install a traffic signal would be made. Wes stated that the Town would need to go to a scoping meeting with MaineDOT and that MaineDOT would have decision authority. The Town could make a recommendation to MaineDOT to approve the installation of a signal. Wes also noted that the signal could be put in place by the Town or by the Bowdoin Mill as part of its project.
5. Michelle asked whether there was enough space to fit a left-turn bay entering Summer Street. Wes pointed out that the pavement width is currently 31 feet in this area on Route 201, so this could be done by using 10 foot lanes. In addition, the bump outs for parking may need to be removed to fit the turn bay.
6. Wes noted that MaineDOT already did a great deal of work on Route 201 two years ago and that this area is in essence a 5-year moratorium. If the Town would like to improve the roadway before 5 years is up, it is likely the Town will spend a decent amount of money funding the project, as MaineDOT will not want to rip up a roadway that it just spent money improving.
7. Several committee members felt that a connection from Summer Street to Winter Street would be particularly useful if Winter Street were to become two-way, allowing vehicles to make the left-turn at the signalized intersection. It was requested that GPCEI further consider this option.
8. Michelle stated that she would like to see some type of speed bump on the curve on Summer Street near Route 201 to slow traffic and asked whether any speed studies had been done. Michelle also noted that sight distances exiting her driveway and adjacent driveways are inadequate. Rich presented the committee with a speed survey done on the Summer Street, which showed an average speed of approximately 29 mph. Wes responded that a raised speed table could be used to help calm traffic and recommended cutting back of some of the hedges along the property to increase sight distance.
9. Dave noted that previously the Town Offices and Public Safety buildings were proposed to occupy the Wright Pierce property opposite Monument Place. The plans have changed and the buildings are now proposed to be located on the southwest corner of the intersection of Route 201/Monument Place with driveways on each of the roadways.

10. Dave and Rich felt that the connection from Brunswick to the Topsham Fair Mall along the existing railroad bed would be a very costly and time-consuming alternative in order to obtain property from the railroad. Therefore, it was felt that this should be shown as a possibility, but not as a recommended improvement.
11. Dave and Rich felt that reconstruction of the Black Bridge may also cause issues as several of the residents indicated a strong desire to leave the bridge as is and this may be a costly alternative. However, both were in agreement that recommending the bridge be right-turn off/right-turn on only in Brunswick should be shown on the plan. The designation for this should be changed from "recommended" to "consider further".
12. Dave asked what type of treatment would be recommended by GPCEI for the intersection of the Monument Place Extension and Mallett Drive. Rebecca stated that GPCEI would recommend that the Monument Place Extension be free-flowing in order to maximize capacity. Two options exist that allow this to occur. The first option is to make the two Mallett Drive approaches stop-controlled. The second option would be to put a roundabout at this intersection. Dave asked whether sufficient space exists for a roundabout. Rebecca responded that this would need to be examined.
13. Dave and Rich were in agreement that a SimTraffic simulation of the Monument Place Extension and Route 196 before and after construction of the Monument Place Extension would be very helpful, particularly for the public hearing so that the residents can get a feel for what the traffic situation will be in the future if this alternative is constructed.
14. Dave asked what pedestrian treatment has been looked at for the intersection of Route 196/Route 201. Rebecca noted that GPCEI has shown a recommendation for a bike/ped path extending from the high school to at least Dairy Queen on Route 201. Rich noted that a pedestrian bridge has been suggested crossing the westbound Route 196 approach to Route 201. It was recommended that GPCEI look at this option and other options for getting pedestrians through this intersection safely and efficiently.

As a result of this meeting, it was felt that another meeting should occur before Christmas that attempts to make recommendations as to which improvements should be considered further. A meeting was tentatively set for Monday, December 13, 2004 at 8:30 AM at the Topsham Town Hall. This meeting will be aimed mainly at discussing improvement alternatives in the Lower Village. It was requested that GPCEI complete a preliminary analysis of the alternatives in the Lower Village prior to this meeting. It was requested that GPCEI prepare a pdf file of the aerial showing all of the proposed improvements that could be available for the committee to review prior to the December 13 meeting.

#### C: Transportation Committee

## MEETING NOTES

**By:** Rebecca Brown  
**Date:** December 13, 2004  
**Subject:** Topsham Comprehensive Transportation Plan  
Committee Meeting to Discuss Design Alternatives  
**Attendance:** Dave Fuller, Wes Thames, Jane Johnson, Fred Hahn, Jim Howard, Jane Scease, Sue Spann,  
Michelle Jones, Rich Roedner, Dana Cary, John Foster, Matt Eddy, Peter Hedrich and Rebecca  
Brown

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The purpose of this meeting was to discuss the design alternatives for the Topsham Transportation Study in an effort to eliminate infeasible options, gain feedback on more feasible options, and begin to prioritize the improvements. Rebecca began with an overview of the following five design scenarios: 2009 Options 1 & 2 and 2024 Phases 1, 2, and 3. Peter gave a brief discussion of the work done to date on each of these options and the results of a preliminary level of service analysis as a result of applying each design phase. Items of discussion were as follows:

1. Dave asked whether GPCEI had a list of all of the assumptions that were made when estimating the residential and commercial growth. Peter responded that GPCEI could include this information. Jane Scease asked whether the estimates included development on the western side of I-295 and whether the estimates included the zone change to extend the commercial zoning along Route 196 west of I-295. Rebecca responded that both of these were included in the 2009 and 2024 Design Year Volumes. Dana asked how the residential growth was estimated. Rich explained that a meeting occurred with GPCEI and Rich to discuss potential areas of development in the Town over the next 20 years. Peter explained that a background growth of 1% per year was applied to the 2004 existing volumes and additional traffic was added to the network based on the potential developments identified at the GPCEI meeting with Rich.
2. Dave asked whether the “not recommended” options could be removed from the graphics to avoid any confusion. Peter responded that GPCEI would include one diagram showing all options considered to show the public that many options were considered. In addition, GPCEI would prepare diagrams showing the sequence of phasing. Rich responded that the Canam Drive/Route 196 connection may happen in the next couple years while the Route 196/201 connector thru Crooker would likely occur when development occurs on the Crooker site. Therefore, more discussion may be needed on the sequence of phasing to decide which improvements should come first, etc.
3. Jane Scease compared Topsham to South Portland in the vicinity of the Maine Mall and asked whether Topsham is behind in planning so that it is going to create a mess before fixing anything or whether Topsham is ahead so that it can avoid the mess by providing alternative means of access. Peter responded that by developing a transportation plan, Topsham is staying ahead of the “mess”. Peter added that the Monument Place Extension provides capacity for more development at the mall, and that a Route 196/201 connector would help prevent congestion if built as development occurs west of I-295 and at the Crooker site.
4. Dana asked whether it was in the budget to hold a public meeting and gain opinions from the public on which improvements should occur first and what the public views as potential costs.
5. Rich asked whether it would be possible to assess the impacts of BIW or BNAS closing. Peter responded that it would be very difficult to separate out this traffic and that it would likely require employment information from both BIW and BNAS. Peter also noted that as one development leaves,

- potentially another will take its place. Therefore, the closing of either BIW or BNAS may not result in a decrease in traffic, in the long term.
6. Wes noted that there is a scoping meeting scheduled for December 22, 2004 for the Bowdoin Mill project and that it would be a good idea to take the plan showing all of the potential improvements to this scoping meeting for MDOT to see what the Town feels are the potential improvements needed in the network.
  7. Michelle asked what the impact would be on the Frank Wood Bridge during the peak hours of the day if Option 1 or Option 2 were set in place. Peter responded that the controlling factor for traffic conditions on the bridge is really what is occurring on either side of the bridge. When intersections on either side of the bridge become backed up, congestion occurs on the bridge. Michelle expressed concern that a traffic signal at Summer Street may not be the best option, and that residential traffic exiting the Summer Street neighborhood would have difficulty getting out with the additional traffic created by the parking lot and the restaurant proposed for this area. Peter responded that the signal timing would be set such that it allowed adequate time for traffic to exit Summer Street and the Bowdoin Mill. Peter also noted that a significant amount of green time would be provided for these approaches to allow pedestrians to cross Main Street.
  8. Wes commented that Summer Street is currently the only place in the Lower Village where left turns can be made. He felt that moving the left turns up to Winter Street with a connector between Winter and Summer Streets would greatly relieve the traffic at Summer Street. Wes also added that he would like to see this happen very soon. Wes also noted that it is important to coordinate with Brunswick if signals are going to be added or changed in the Lower Village due to the proximity to Brunswick.
  9. Dave stated that rehabilitation of the Frank Wood Bridge is on the schedule for this summer and asked whether the bridge should be rebuilt based on the traffic volumes that exist today. Peter responded if the bridge is widened, the traffic must have a place to go on the other side of the bridge. Therefore, unless the Town plans to expand Main Street, it would not be beneficial to rebuild and expand the Frank Wood Bridge. Dana commented that when a break down occurs on the bridge, traffic backs up extensively because there is no where for it to go. Dana felt that the bridge needs to be widened to include break-down lanes and space for emergency vehicles to maneuver. Wes noted that rebuilding the bridge would require the Town to go without a bridge for a year while the new bridge is being built. Jim commented that this may be a reason for keeping some of the "not recommended" options including building a connection from Brunswick to the Topsham Fair Mall along the existing Guilford Railroad bed. Jim also noted that a connection from Brunswick to the Mall is needed. Wes pointed out that this may be something that the Town could keep as an option for 2024 as it would likely no more about what the railroad plans to do with this land by 2024.
  10. Rich asked whether the left turns could be prohibited out of the Bowdoin Mill, instead requiring everyone to turn right out and reverse direction using Green Street to access the signal at Elm St/Winter St/Main St. Peter responded that this would require doing some improvements at the intersection of Green Street and Elm Street. Another option might be to reverse direction by making a left onto Winter Street and a right off of the Spur.
  11. Significant discussion occurred as to prohibiting the left turn from Main Street onto the Winter Street Spur. With this improvement, all left turns from Main Street to Winter Street would occur at the signal at Elm Street. Wes commented that if there are two cars waiting to make this left hand turn onto Winter Street, they will back up traffic all along Main Street. Michelle asked how the signal at Summer Street would work if traffic along Main Street is all backed up and there is nowhere for the vehicles to go when the light turns green. Wes felt that the ordeal at Winter Street should be considered a top priority and could be managed with a fairly simple and quick change. Fred and Wes noted that people park in front of Michaud's market and block vehicles on Route 201 from getting around vehicles waiting to turn left onto Winter Street Spur. Fred felt that putting up a sign and prohibiting left turns from Main Street onto

the spur would help relieve congestion on Main Street northbound. Wes pointed out that making the Winter Street Spur one-way would provide additional space for parking along the spur. Sue stated that a problem occurred on Main Street when the right turn lane onto Elm Street was removed in favor of adding the left turn lane onto Winter Street. People did not like having to stop on this hill to make the turn and found it difficult to adjust to this change. Peter felt that the grade at the intersection of Main Street/Elm Street/Winter Street might make it difficult to make this left hand turn in inclement weather. Wes and Jane Johnson disagreed and stated that they had made this left turn several times. Rich noted that people often wonder why the left turn lane is there if it is so lightly used. Once the left turns are prohibited at the spur and are required to use the signal, people might see a reason for removing the right turn lane in favor of the left turn lane. Michelle asked whether making this change at Winter Street would be enough to allow vehicles to enter/exit Summer Street with the addition of the parking lot and restaurant. Further analysis will be necessary to determine whether this change will have a significant enough impact on Summer Street/Bowdoin Mill. Fred asked how soon the left turn could be prohibited at Winter Street Spur. Wes stated that the Board of Selectmen would need to approve it first. Jane Scease felt that she would like to see this done as soon as possible, but that a meeting would need to occur with the Board of Selectmen to convince them that this is a good idea first.

12. Michelle asked whether adequate space exists to include left turn bays entering the Bowdoin Mill and Summer Street. Rebecca stated that this issue was discussed at the November 29, 2004 meeting and that at this time it was felt that adequate space does exist, but that this may involve removing the parking along Main Street in this area. This reduction in parking would hopefully be offset by the additional parking lot being constructed on Summer Street. Jane Scease stated that the bump-outs for parking along Main Street are dangerous and Michelle concurred that several accidents have occurred as a result of them. Jane Scease felt that these were particularly dangerous at night, when they are not easily visible and drivers are not expecting them.
13. Rich pointed out that there is still an issue at the Black Bridge that needs to be handled. The question was raised as to whether the Black Bridge is a viable alternative for future access to the Topsham Fair Mall area. Jim stated that the bridge would need to be moved away from the railroad bridge and a large area cleared in order to do this. Fred asked whether the railroad currently uses the tracks. Wes and Jim stated that the tracks have not been used for 10-15 years, but that the railroad company states that it might use the tracks.
14. Wes stated that the Route 1 SB ramp onto Route 201 in Brunswick should possibly be closed during construction or rehabilitation of the Frank Wood Bridge since the bridge would have one-way alternating flow during construction. This traffic would need to use the Coastal Connector and Elm Street to get to Route 201. Jane asked whether this ramp could be closed, requiring people to use the Coastal Connector and how much traffic that would take off Route 201. Peter responded that based on a count done in 1999, 205 vehicles were making a right hand turn off the Route 1 SB ramp onto Route 201 to enter Topsham. Fred asked what the impact on businesses in the Lower Village would be if these vehicles were removed from the area. Peter pointed out that the vehicles coming from the Route 1 SB off-ramp amount to less than 20% of the traffic entering Topsham on Route 201. Jim noted that most of the businesses in the Lower Village are not of a type that typically attracts pass-by traffic to any significant extent. Fred asked what would happen to any new shops that might come into the area. Michelle pointed out that there isn't any room for these shops to go. Dave felt that this summer may be a chance to try out some of the options while the bridge is under construction in order to get people used to using the Coastal Connector and Elm Street. Dave felt a meeting in January would be in order to discuss the impact of closing the bridge and to discuss some of the options for the Lower Village.
15. Dave felt that as part of prioritizing the alternatives, a discussion should be included about who is responsible for each part of the alternatives and how each would be developed. For example, the FHWA

- and MDOT would be responsible for any new interchanges from I-295, and private developers would likely be responsible for a connector road from Route 201 to Route 196 thru the Crooker Property.
16. Peter showed the group a SimTraffic simulation of the Route 196 corridor and the Monument Place Extension if the extension were constructed. Wes stated that they would like to see the existing Monument Place "T-up" with Route 196 and the Monument Place Extension and be stop-controlled. Dave stated that it would also be good to show traffic going to the undeveloped lots off Hamilton Court. Fred asked whether there would be a signal at Hamilton Court. Peter stated that a STOP sign is modeled in SimTraffic but that this could also be a roundabout. Dave and Wes expressed concern that the grade separation in the vicinity of Hamilton Court would not allow for a roundabout. Rich asked whether the bike path could be moved to allow for the roundabout. Dave questioned whether the bike path could be brought thru Smith Farms to allow for a roundabout. Jane S. asked whether a roundabout could be included at Mallett Drive. Peter said that this might be tight, but it might be possible. Fred expressed concern that a STOP sign on Mallett Drive would not slow traffic down on the Monument Place Extension. Peter noted that it is not desired to slow traffic down too much on the connector because we'd want people to see the connector as more appealing than using Route 196. If vehicles are constantly stopping along the connector, they will be less likely to use it over Route 196. Jane Johnson stated that she would like to see a right turn lane exiting Mallett Drive onto Route 196. Dave, Jane Johnson, and Wes also stated that they would also like to see separate right and left turn lanes exiting Hamilton Court onto Route 196. Dave stated that he would like to see traffic going into the lot opposite the RiteAid. The SimTraffic model showed vehicles in the eastbound left turn lane on Route 196 at Route 201 backing up down Route 196. Wes stated that another thing leading to back-ups on Route 196 is that drivers know that Route 196 becomes one lane after Route 201, so they stay in the left lane and don't use the right-most thru lane as much. Expanding Route 201 to 4 lanes down to Community Way would help with this problem.

Another meeting was tentatively set for January 3, 2005 at 8:30 AM at the Town Hall to discuss the result of the revisions to be made as a result of this meeting.

C: Transportation Committee

## MEETING NOTES

**By:** Rebecca Brown  
**Date:** January 3, 2005  
**Subject:** Topsham Comprehensive Transportation Plan  
Committee Meeting to Discuss Lower Village Alternatives  
**Attendance:** Dave Fuller, Wes Thames, Jane Johnson, Fred Hahn, Jim Howard, Jane Scease, Sue Spann,  
Rich Roedner, Ric Quesada, Don Russell, Peter Hedrich and Rebecca Brown

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The purpose of this meeting was to discuss the design alternatives for the Lower Village in an effort to eliminate infeasible options, gain feedback on more feasible options, and begin to prioritize the improvements. Peter gave a brief overview of the improvements to be included in each of the Lower Village alternatives and the impact that each improvement could have on traffic conditions. Peter also discussed the revisions made to the design alternatives for the Route 196 corridor and the phasing of the alternatives. The floor was then opened to comments, suggestions and questions by the committee and Town staff. Items of discussion were as follows:

1. Peter discussed a new alternative that would add a third westbound through lane to Route 196 from Mallett Drive to the I-295 SB on-ramp. Dave asked whether enough right-of-way currently exists to add this lane, as well as add an additional through lane in each direction west of I-295. Wes commented that there may not be adequate right-of-way west of the gas station on Route 196, but that right-of-way would need to be acquired in the future to provide for these improvements.
2. Sue noted that at the previous committee meeting a comment was made that once people are at the Bowdoin Mill, they do not leave until the end of the day. Sue also noted that a medical office, restaurant, lawyer's office, real estate office and several other businesses exist at the Mill that have customers, patients and clients arriving and leaving throughout the day. Sue felt that this increases the need for a traffic signal at this intersection.
3. Wes noted that adding turning lanes at Summer Street and the Bowdoin Mill could be dangerous because it would increase the width of roadway a vehicle needs to cross in order to make a left turn out of Summer Street and the Mill. Peter noted that separating the turning vehicles from the through vehicles into a turning lane allows the through vehicles to continue flowing while the vehicle waits to turn left onto Summer Street or into the Mill. Because vehicles continue to flow, more gaps are left open for vehicles to turn out of Summer Street and the Mill. Dave asked whether signaling Summer Street and the Mill would eliminate the need for turning lanes. Peter noted that signaling the intersection increases the need for turning lanes in order to avoid back-ups on Main Street.
4. Dave asked whether the right turn from the Rte 1 SB ramp to Rte 201 NB could be eliminated in order to create more gaps at Summer Street and the Mill. Peter noted that GPCEI had not yet analyzed this case, but that this could be done for the next meeting. Dave further noted that both Topsham and Brunswick are in favor of eliminating this movement and that MaineDOT appears to also be in agreement. Peter commented that according to a conversation with Randy Dunton, the MaineDOT was reserving judgment regarding eliminating the right turn off this ramp. Rich asked how the Town could get MaineDOT to reach a decision on this matter. Peter commented that the model should be run so that it may be seen what traffic looks like with and without this improvement. Peter also noted that eliminating the Route 1 SB ramp would increase the need for four lanes on the Coastal Connector. Dave, Sue and Wes felt that increasing the need for four lanes was positive because the Coastal Connector currently backs up significantly in the summer time and during the PM peak hour. Fred felt that widening the Coastal Connector to 4 lanes without closing the Rte 1 SB ramp would make more people use the Coastal

Connector instead of the Rte 1 SB ramp to Rte 201. Dave asked if people would use Route 24 instead of the Coastal Connector if the Rte 1 SB ramp were closed in order to access the Lower Village. Concern was expressed that adding traffic to Elm Street by closing the Rte 1 ramp to Rte 201 would negatively impact the neighborhood. Wes stated that Elm Street is wide enough to accommodate the additional traffic and it should be noted that Elm Street is Route 24. Sue pointed out that the Elm Street would lose its residential feel that it has been given. Sue and Jane J. also felt that speed monitoring on Elm Street would be necessary if the Rte 1 SB ramp were closed. Peter asked how much of the traffic getting off at the Rte 1 SB ramp was thought to reach the Route 196/Route 201 intersection. Jim felt that a high percentage of these vehicles reach this location and Jane S. stated that of 210, probably 190 reach this intersection. If opinions are accurate, very little traffic would be reassigned to Elm Street in order to access the Lower Village. Jim asked whether the Town could get counts from the Rte 1 off-ramp to Route 196 to see how many vehicles actually do reach this intersection. Peter noted that this would be possible, but would involve doing a license plate study at the two locations.

5. Jim expressed concern that people may not be able to get out of Summer Street and the Bowdoin Mill without a signal if turning lanes are added on Route 201. Jim further noted that often the only time a vehicle is able to turn out of Summer Street or the Mill is when a person waiting to turn left onto Summer Street or into the Mill allows you to go first. Peter stated that moving the turning vehicles over into a turning lane would allow Route 201 traffic to flow freely instead of queuing behind vehicles waiting to turn. This would open gaps for vehicles to turn out of Summer Street and the Mill.
6. Peter noted that placing a traffic signal at Summer Street would require a pedestrian phase. Jim stated that another crosswalk is needed, potentially at the bridge. Wes noted that sight distances coming off the bridge are not adequate for having a crosswalk at the bridge.
7. Fred stated that he felt the improvements at Winter Street and Route 1 SB ramp improvements would help significantly, and may eliminate the need for a signal at Summer St/Bowdoin Mill if gaps are created in through traffic.
8. Wes noted that opening Elm Street Extension to two-way traffic and moving the left turns from Rte 201 to Winter Street up to the signal at Elm Street Extension have been further explored since the last meeting. Wes commented that it appears a 24 ft roadway could be achieved by placing a retaining wall on adjacent properties. Concerns had previously been expressed about whether a fire truck would be able to make the left turn from Route 201 onto Elm Street Extension. Wes noted that moving the fire station to Monument Place would make this a right turn instead of a left turn, which a fire truck would be able to make. Don asked whether moving the left turns up to Elm Street Extension would simply be shifting the problem upstream. Wes stated that adequate space exists for 3-4 vehicles to queue at the signal at Elm Street Extension and that he has yet to see 3 or 4 vehicles waiting to turn left from Route 201 onto Winter Street.
9. Wes stated that the Town needs to coordinate with the Bowdoin Mill in order to get a second exit out of the Mill as a relief, perhaps on Green Street.
10. Ric stated that he felt allowing the left turn off the Rte 1 SB ramp and eliminating the right turn off the ramp was a great idea because it would interrupt continuous flow coming across the bridge into Topsham, making left turns out of Summer St/Bowdoin Mill easier. Fred asked whether allowing left and right turns off the Rte 1 SB ramp, but eliminating the right turn on red so that right turns are required to stop would be enough to open up gaps at Summer St/Bowdoin Mill for vehicles to exit.
11. The committee has a meeting with the Board of Selectmen to present the alternatives for the Lower Village in an effort to obtain approval on January 20, 2005. The following items need to be worked out for this meeting:
  - a. Second access location to the Bowdoin Mill
  - b. Exit out of the Summer Street parking lot
  - c. Closing the Route 1 SB ramp to Route 201 NB

- d. Moving left turns onto Winter Street from Route 201 up to the signal at Elm Street Extension and opening Elm Street Extension to two-way traffic flow.
- e. Turning lanes on Route 201 at Summer Street/Bowdoin Mill
- f. Signalizing Summer Street/Bowdoin Mill

Rich stated that he would draft a list of priorities and send them to GPCEI to review. A meeting was set for Monday, January 10 at 8:00 AM to prepare for the meeting with the Board of Selectmen. It was requested that GPCEI prepare SimTraffic simulations of the Lower Village for the year 2009 depicting each of the propose alternatives for this meeting.

C: Transportation Committee

## MEETING NOTES

**By:** Peter Hedrich  
**Date:** January 10, 2005  
**Subject:** Topsham Comprehensive Transportation Plan  
Committee Meeting to Determine and Prioritize Short-term Improvements  
**Attendance:** Dave Fuller, Jane Johnson, Fred Hahn, Jane Scease, Sue Spann,  
Rich Roedner, Ric Quesada and Peter Hedrich

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The purpose of this meeting was to discuss the design alternatives contemplated for short term improvements in the Town. Town staff had prepared a draft five year plan as a basis of discussion. Peter began the meeting by presenting a SimTraffic animation of five scenarios for the lower village traffic flow as follows:

### **2009 Existing Conditions**

- Volumes reflect a 1% growth rate per year and include 200,000 s.f. of development at the Topsham Fair Mall, 35,000 s.f. of office space and 10,000 s.f. restaurant approved for the Lower Village, 159 space parking lot, and development at Hamilton Court lot. No further development was included.

### **2009 with Route 1 Ramp Closed**

- Includes closing the right turn from the Rte 1 SB ramp to Maine Street (Brunswick) NB and opening the left turn from Rte 1 SB ramp to Maine Street SB and signaling the intersection.
- Includes eliminating left turns from Main Street onto Winter Street and moves the left turns to the signal at Elm Street Extension.
- Volumes are the same as the 2009 existing conditions volumes with the exception of the following trip reassignments:
  - The 223 vehicles previously turning right from the Rte 1 SB ramp to Maine Street have been reassigned to the Coastal Connector and Elm Street.
  - The left turns from Rte 201 onto Winter Street have been reassigned to Elm Street Extension.

### **2009 Option 1**

- Includes all improvements to be made in the “2009 with Rte 1 Ramp Closed” scenario.
- Opens Elm Street Extension to two-way traffic flow, allowing left turns and through movements from Elm Street Extension at the Main Street signal.
- Includes construction of 75’ left-turn bays on Main Street at the intersection with Summer Street and the Bowdoin Mill.
- Volumes are the same as the “2009 with Rte 1 Ramp Closed” volumes with the exception of the following trip reassignments:
  - 40 of the vehicles turning left out of Summer Street have been reassigned to Elm Street Extension, as they would likely use the Summer/Winter connection to access the signal at Main Street to make the left turn.
  - Additional vehicles that would previously have used Wilson Street to turn left onto Main Street were reassigned to Elm Street Extension.

### **2009 Option 1 with Signal at Summer/Bowdoin Mill**

- Includes all improvements to be made in the “2009 Option 1” scenario.

- Signalizes the intersection of Summer Street and Bowdoin Mill and coordinates this signal with the signals at the Rte 1 SB Ramp and Elm Street/Elm Street Extension.
- Volumes are the same as the “2009 Option 1” volumes with the exception of 30 vehicles that were reassigned from Elm Street Extension to Summer Street as they would likely no longer use Elm Street Extension to make a left turn onto Main Street if a signal were installed at Summer Street.

**2009 Option 1 with Signal at Summer/Bowdoin Mill but no Turn Lanes**

- Same as above, but without providing turn lanes at the Mill and Summer Street.

The draft five year plan and the SimTraffic presentation were a basis of discussion as follows:

1. The simulation runs showed that not having left turn lanes at Summer/Mill would result in continued and likely increased congestion in the Lower Village. The option of a signal without the turn lanes appears to be unworkable, as it results in traffic back-ups along Maine Street in Brunswick. The Committee was concerned with adding pavement width to Main Street as this would make pedestrian crossings more difficult, reduce the village feel that was sought with the improvements that are already in place, and potentially increase traffic speeds. Sue and Fred were particularly concerned with the turn lanes. However, given the forecast traffic conditions, the Committee decided to bring the lanes forward as a recommendation to the Selectmen, with the condition that the lanes be provided with the least widening and length possible and that this work occur along the west side.
2. Elimination of the right turns from the Route 1 ramp in Brunswick was discussed as well as modifying flow on the black bridge to one way from Topsham to Brunswick. General consensus was that the wrong message would be sent to travelers if access to Town were restricted to such a degree. However, additional signage should be placed on Route 1 to encourage the use of the Coastal Connector.
3. Adding an access from Bowdoin Mill to Green Street was discussed and determined to be undesirable due to the residential nature and design of Green Street and the cost of constructing a new bridge. Ric indicated that the existing bridge would be replaced with a pedestrian bridge.
4. The potential for a connection from the Summer Street parking lot to Winter Street was discussed. This would be a one-way exit and of a driveway as opposed to a public street. The Committee concluded that this would not be desirable as it would encourage cut-through traffic in a private parking lot, and would be very expensive to construct due to the need for retaining walls.
5. The addition of a turn lane for eastbound Route 196 at Main Street was discussed. The Committee decided that a short term approach of lengthening the left turn lane within the existing median would be tried rather than adding a second left turn lane. This would result in somewhat longer delays for this movement in the short term, but the second lane will not be needed once the western Route 201/Route 196 connector is constructed in the future.
6. The committee did not favor a connector road between Eagle’s Way and Village Drive. The terrain is adverse in this area and the function of this road would be addressed by the Village Drive connection of CanAm Drive. Therefore this link should be removed from the plan.
7. The Committee will recommend widening the Coastal Connector to 4 lanes for its entire length.

The Committee prioritized the resulting alternatives and Rich will provide a new summary of the overall recommended five year plan that will be presented to the selectmen on January 20<sup>th</sup>. The plan will be emailed to all committee members for review and comment.

C: Transportation Committee

## MEETING NOTES

**By:** Peter Hedrich  
**Date:** March 14, 2005  
**Subject:** Topsham Comprehensive Transportation Plan  
Committee Meeting to Initiate Final Work  
**Attendance:** Dave Fuller, Wes Thames, Fred Hahn, Jim Howard, Sue Spann, Rich Roedner, Dana Cary, Peter Hedrich and Rebecca Brown

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The purpose of this meeting was to review the current project status and determine the elements to be included in the final study. Discussions on the five-year plan were completed, and the 20 year plan will be discussed at the next meeting. Items of discussion were as follows:

1. Should Green Street be included as one-way northbound? The committee decided the best approach would be to monitor this situation as the other changes in Lower Village are implemented and to consult with the residents prior to making any changes to Green Street. The sight distance problem looking left from Green Street at Elm Street would need to be considered in any decision to change the traffic patterns.
2. Pedestrian crossings of Main Street need to be addressed at several key locations such as the relocated Town Hall, Wilson Street, Pleasant Street, and Elm Street in addition to those that already exist in Lower Village.
3. Topsham Fair Mall Road should have accommodations for pedestrian crossings, particularly at Hannaford and Target.
4. Gorrill-Palmer Consulting Engineers, Inc. should provide information that clearly depicts the forecast traffic growth for the 5 and 20 year horizons. Peter indicated that this would be done in graphical format.
5. Dana suggested that the Town should institute a ped/bike committee to address these needs in the community.
6. The study needs to address safety issues in addition to the operational issues that have been discussed to date. Peter indicated that a safety analysis will be included in the final report.
7. Further study of Main Street from south of Monument Street to Route 196 is needed and should consider the Town Hall and access to the east of Main opposite Monument Place. This would be a more detailed and varied analysis than was envisioned by the original study.

A meeting was set for March 28th at **8:00 AM (Note time change)** at the Town Hall to discuss the 20 year plan.

C: Transportation Committee

## MEETING NOTES

**By:** Peter Hedrich  
**Date:** March 28, 2005  
**Subject:** Topsham Comprehensive Transportation Plan  
Committee Meeting to Review Long-Term Plan  
**Attendance:** Jane Scease, Dave Fuller, Wes Thames, Fred Hahn, Jim Howard, Rich Roedner, Dana Cary,  
Peter Hedrich

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The purpose of this meeting was to determine the elements of the 20-year plan to be included in the final study. Items of discussion were as follows:

1. The status of the Route 1 southbound ramp left turn in Brunswick should be investigated [Gorrill-Palmer Consulting Engineers, Inc. contacted John Foster in Brunswick. He indicated that this will be included in a study that is in the proposed BTIP for 2006-2007. Implementation would not occur until sometime after the study is completed.].
2. The report should not characterize traffic operations as “failing” since this may give an overly pessimistic impression.
3. Add Park Drive Extension to the base map. Also, several other adjustments to the base map were noted on the display drawing and will be incorporated into the plan.
4. Clarify the location of the future traffic signal on Route 196 west of the west side connector. The plan currently indicates signaling Meadow Cross/River Road. The signal location will actually be dictated by emerging development patterns and could be located anywhere along the corridor. However, at the time that it is to be implemented, the selected location should be carefully considered for optimum benefit to the corridor.
5. The analysis should separate the east side Route 196/201 connector as an independent alternative, rather than grouping it with the west side connector. The east side connector is more likely to occur in a later time frame than the west side connector.
6. The north end of the east side connector should show the option of connecting to 201 through the existing Crooker access road, since this is the more likely route if the interstate ramps are not moved.
7. The committee has asked Dana to be the spokesperson at the public meeting(s) for the 20 year plan.
8. Gorrill-Palmer Consulting Engineers, Inc. will proceed to prepare the draft final study by May 13.

C: Transportation Committee

## MEETING NOTES

**By:** Rebecca Brown  
**Date:** June 27, 2005  
**Subject:** Topsham Transportation Plan  
Committee Meeting to Review Final Transportation Plan  
**Attendance:** Fred Hahn, Jim Howard, Dave Fuller, Wes Thames, Sue Spann, Dana Cary, Rich Roedner,  
Michelle Jones, Jane Scease, Rebecca Brown, Peter Hedrich

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The purpose of this meeting was to review the “final draft” of the Transportation Plan and provide feedback for any revisions that should be made. The following items were discussed:

1. Dave had the following comment on page 32 of the report, “There already is a sidewalk on the eastern side of Main Street from CanAm Drive to the Lower Village. With the construction of the Town Office and Public Safety Building on Main Street, a sidewalk should be constructed on the western side of Main Street, probably from Monument Place to Wilson Street. Due to terrain and proximity of buildings very close to the street, it would be very costly to construct it all the way to the Lower Village. The crosswalk at Wilson Street will enable pedestrians to cross to the sidewalk on the eastern side to access the Lower Village.” The Committee agreed that the report should be revised to reflect this comment.
2. Dave commented that the only way pedestrian/bicycle access should be provided on the Black Bridge was if it were on the upper deck and a “rails-to-trails” project were initiated. It was generally felt that the Swinging Bridge is a safer crossing for pedestrians and bicycles. Jim stated that the report should be revised to say if the Black Bridge is abandoned by the railroad and a “rails-to-trails” project is initiated, a pedestrian/bicycle path could extend across the Black Bridge. Wes noted that the Committee had previously looked at replacing the Black Bridge and the railroad bed becoming a road connecting to the Topsham Fair Mall. This option could allow for pedestrian/bicycle access.
3. Dave requested that the following statement be added to the report: “Work through MDOT to re-designate Route 24 such that it runs from Middlesex Road to Bypass Drive to The Coastal Connector (Rt. 196) to Rt. 1 to Cook’s Corner and reconnects with existing Rt. 24 there. This is to avoid directing traffic along Elm Street, Main Street, Maine Street (Brunswick) and Bath Road that wants to go to Harpswell.” The Committee had agreed to this at an earlier meeting.
4. Rich and Jim requested that the executive summary from the Task 1 report be added to the Transportation Plan final report as an appendix that is referenced in the executive summary.
5. The question was raised as to the configuration of the Monument Place/Route 196 intersection after completion of the Monument Place Extension. Wes stated that the improvements at this intersection would limit exiting traffic from Monument Place to right out only. However, left turns would be allowed into Monument Place from Route 196. Peter suggested that the report should also recommend that this intersection be monitored for safety, with the possibility of closing the median break to prohibit left turns if left turns become a safety problem. The Committee agreed with Peter’s approach.

6. Michelle noted that the acknowledgements section references the June 21<sup>st</sup> meeting, but does not recognize any of the other public meetings that occurred and at which residents provided input. Michelle recommended that these meetings also be included in the acknowledgements. Rich agreed provide a list of these meetings for inclusion in the report.
7. Page 1 of the report references the Winter Street access to the mall and states that it is not expected to serve a significant amount of traffic. This statement was based on counts performed during July of 2004, shortly after this access was constructed. Michelle noted that at the time of the counts, the Winter Street access had not been discovered and was under utilized. This entrance has since been discovered and is now much more heavily used to access the mall and as a cut-through route to get to I-295. Wes noted that Winter Street is a collector road and was once heavily used. The volumes on Winter Street today may be as little as 25% of what used to travel on Winter Street 15 years ago. (Gorrill-Palmer Consulting Engineers Inc. looked at historic AADT volumes for Winter Street and found that in 1995, Winter Street experienced an AADT of 4,630 vpd. The counts performed in 2004 indicated an AADT of 2,950 vpd on the same section of Winter Street, which indicates that volumes on Winter Street have decreased significantly in the last ten years.) Fred stated that once Monument Place Extension is constructed, fewer people will use the Winter Street access. Wes noted that the improvements proposed at the Winter Street/Main Street/Elm Street intersection will help to alleviate congestion on Winter Street. Fred asked whether a sign could be placed on Main Street at Winter Street to prohibit left turns now instead of waiting until 2006-2007 to construct the rest of the improvements. Wes stated that the Selectmen want the full intersection improvements constructed all at once. These improvements include widening and improving the grade on Elm Street Extension. Wes also noted that Summer Street is currently the only left turn onto Main Street, with the exception of Wilson Street, and that the improvements to Winter Street/Elm Street/Main Street intersection will alleviate the left turn issue at Summer Street. Jane asked whether a note could be added to the report stating that use of the Winter Street access is increasing and the Town should continue to monitor this intersection. The Committee agreed that this statement should be included.
8. Michelle noted that on page one of the report, it states that three alternatives from Task 1 could improve conditions within the study area without adversely impacting surrounding neighborhoods. Michelle felt this statement was not true because several residents in the surrounding neighborhood to the Monument Place Extension have said that it will affect their neighborhood and have raised concerns over the wooded buffer they will be losing as a result of this connector. Rich stated that it is unknown whether this is true or not, because this area is currently zoned for commercial use. While the connector road will remove some trees to construct a road, this land could be developed commercially and all trees removed. Rich also noted that the Town has set up a meeting with the abutters to the connector in July to make arrangements for acceptable buffers to protect the neighborhood. Jim felt the language should remain as it is in the report because it states that the neighborhood will not be "adversely" impacted. While the neighborhood will experience some impacts, there will only be 4 homes in the Woodside neighborhood and 2 in the Mallett Drive neighborhood that are affected. The properties currently abut commercial property, which could cause greater impacts if developed than the Monument Place Extension would. Fred noted that he was initially against the connector, but that it will have a positive effect on a greater number of people because less

- traffic will be driving through Smith Farms and Woodside once the connector is open. Based on these comments, it was agreed that this section of the report would remain as written.
9. Michelle noted that on page 3 the recommendation is made for a crosswalk on Main Street at the Bowdoin Mill, and asked whether adequate sight distance exists at this location. Jim noted that this crosswalk will be north of the Bowdoin Mill driveway and will have safe sight distances. Michelle asked whether it was reasonable from a traffic capacity standpoint to have two crosswalks in such a short distance and raised concerns over the impact the high volume of pedestrians crossing Main Street would have on Main Street traffic. Rich noted that the crosswalks would slow and stop traffic, making Main Street safer and providing gaps in traffic for vehicles to exit the side streets. Jim noted that pedestrians are going to be in the Main Street area regardless and that safe crossings need to be provided.
  10. In response to discussion about crosswalks in the Lower Village, Dana stated that the Town should develop a Pedestrian/Bicycle Committee to look at these issues and make the Town more pedestrian and bicycle friendly. Dana would like to see a statement recommending such a committee in the report. The Committee agreed with Dana's request. Jane asked whether the Pedestrian/Bicycle Committee should be a part of an ongoing Transportation Committee, with possible sub-committees for peds/bikes and traffic. Dana felt that a Pedestrian/Bicycle Committee works best as a separate committee. Rich noted that a Trails Committee is included in the Comprehensive Plan and should be included as a recommendation in this report.
  11. Dana stated that he would like to see Thompsons Lane and left turns out of Green Street addressed in the report. Peter noted that Green Street was not recommended to become one-way due to sight distances and grades at the Elm Street/Green Street intersection. The possibility of making Thompsons Lane one-way toward Green Street could be recommended in the study. The report is to recommend making Thompsons Lane one-way away from Main Street and examining Green Street in the future.
  12. Michelle noted that page 38 of the report states that after completion of all alternatives, acceptable levels of service can be obtained at all intersections with the exception of two in the Lower Village, which will operate at level of service 'E'. Michelle raised concerns over this level of service because the report states earlier that level of service 'E' is considered undesirable, and questioned what impacts this would have on Main Street traffic. Peter noted that this level of service is what is anticipated if all of the commercial and residential development that was forecast is constructed and traffic utilizes the roadways as estimated. Should this occur, one lane in each direction on Main Street will not be adequate to provide level of service 'D' or better at these intersections. Peter also noted that these two intersections operate at level of service 'F' today without any of the additional development. The level of service 'E' is forecast for the year 2024 with significant additional development in the Town. This indicates that the alternatives will result in improved operations at these intersections over those existing today. Also, Peter noted that level of service 'E' is typically acceptable in an urban environment.
  13. Dana questioned whether the 1% growth rate that was used in the study was low since studies have indicated that people are driving 15% more per year. Peter noted that 1% was a background growth rate, which would reflect increases in through volumes due to development outside the Town. This does not include traffic increases from additional forecast development in the Town. Peter also noted that while vehicle-miles-traveled may be increasing at a rate of

- 15% per year, this may not translate to more trips during the peak hour. This could indicate that people are commuting over longer distances or traveling more often during off-peak hours. Dana asked how the 1% growth rate was determined. Peter responded that it was based on historic AADT volumes on Main Street and Route 196. Wes asked how the realignment of Brunswick Naval Air Station would affect traffic flow in the Town of Topsham. This is something that may need to be examined in future studies.
14. Dana noted that there are six high crash locations (HCLs) in the Town and asked whether these had been adequately addressed in the report. Peter responded that collision diagrams were prepared for each of these locations and were included in the report. In addition, recommendations were made for each HCL. Dana asked whether the Committee needs to go beyond these recommendations to address safety issues such as speed. Wes noted that red-light-running is a problem on Route 196 at several intersections, which may be in part due to the high speed limit. Jim stated that this might be a reason for lowering speeds to reduce red-light-running. Peter asked whether there is advance detection to extend the green time on Route 196. Advance detection would be located at the location where a driver has adequate time to make a decision if the light turns yellow and either stop or proceed safely through the light. This detection would extend the green time if a vehicle is located at this decision point.
  15. The possibility of making the Black Bridge one-way, and in which direction traffic should travel over the bridge were also discussed. Wes noted that making the Black Bridge one-way into Brunswick adds left turns from Main Street onto Summer and Winter Streets. However, making the bridge one-way into Topsham would increase the right turns from Summer and Winter Streets onto Main Street, which would have less impact. Wes also noted that there is a safety issue with the connection of the Black Bridge to Mill Street due to traffic waiting to turn left onto the bridge on Mill Street. Peter noted that this issue would be alleviated if the Black Bridge were one-way to Topsham because drivers on Mill Street would not have to wait for cars to cross the bridge from Topsham and would not have to deal with trying to see whether or not a car is crossing from Topsham. Jim suggested that a reference be added to the report that the Black Bridge issue should be monitored and evaluated. Dave noted that Brunswick and Topsham are currently talking about the possibility of making the Black Bridge one-way to Topsham, as this option would create a series of right hand turns and the alternative would create a series of left hand turns. Jane felt that if discussions are currently going on about making the Black Bridge one-way, a reference should be added to the report. The Committee agreed to add discussion on this issue.
  16. Jim made a motion to submit the study to the Board of Selectmen with the revisions discussed above. Dana seconded the motion. The Committee voted and reached a unanimous decision to submit the study to the Board of Selectmen with the above revisions. Gorrill-Palmer Consulting Engineers Inc. is to revise the study accordingly and provide to the Town Staff and Committee for submittal to the Board of Selectmen.

## C: Transportation Committee

# *Appendix 2*

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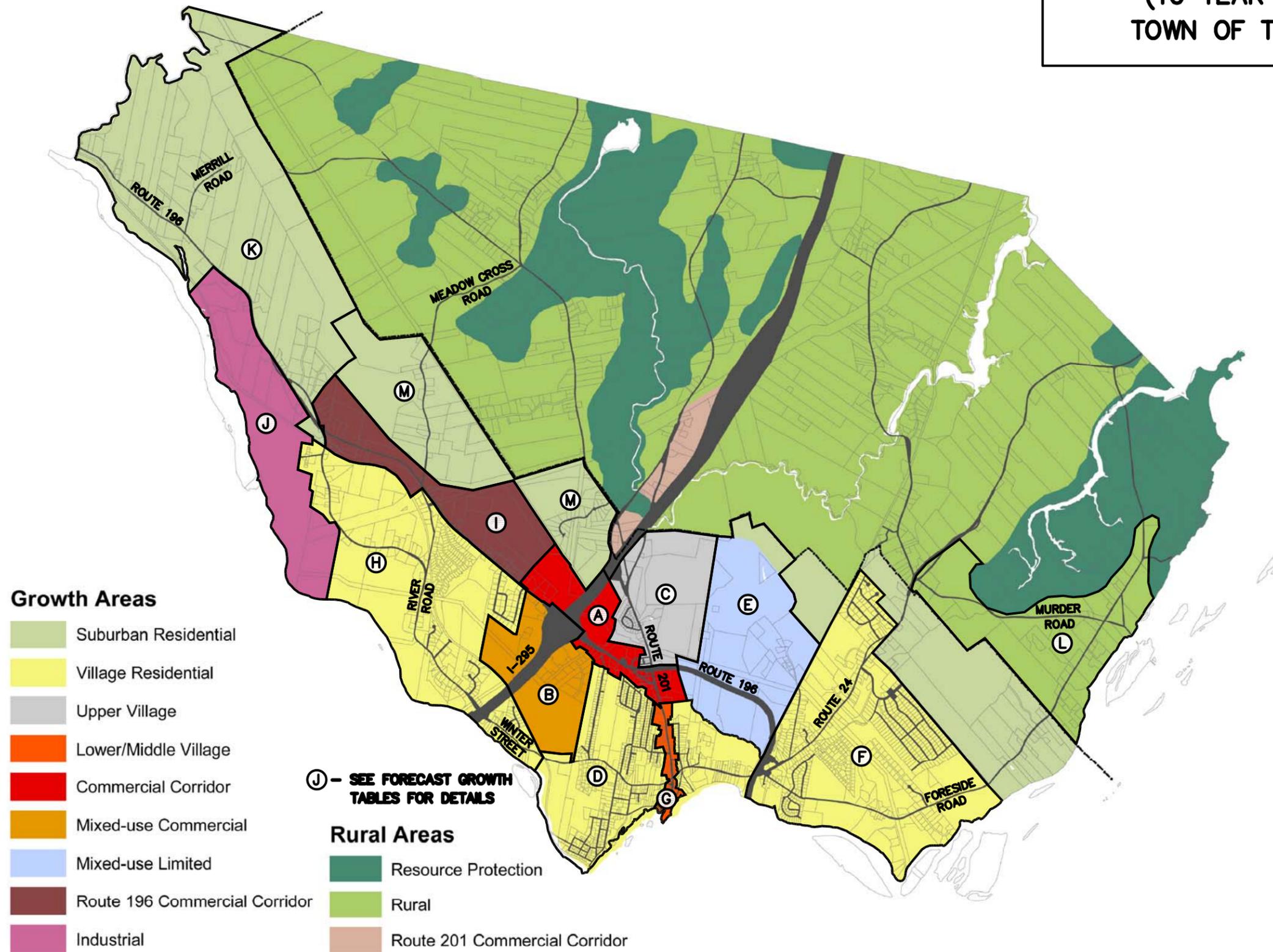
### Town of Topsham - Forecast Growth

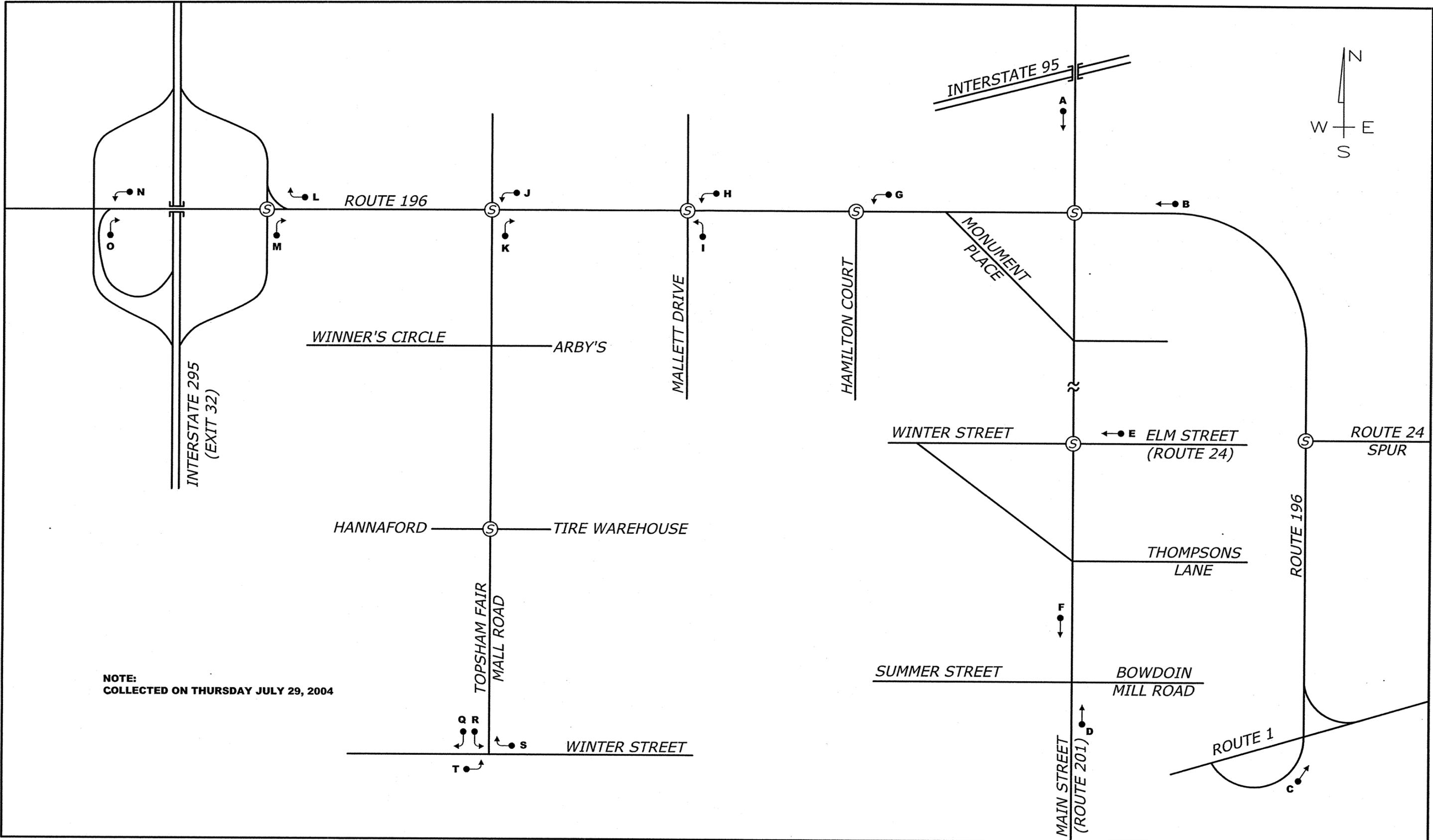
Location	Zone Type	Foreseen Development	Time Frame	Trips Generated (PM Peak Hour)		
				5 year	10 year	20 year
A	CC – Commercial Corridor	100,000 s.f. Village retail at intersection of Rte 196/Rte 201 (existing land uses to be removed including car dealerships, etc.)	5 – 10 years	250	502	502
		200,000 s.f. commercial/mixed use with mainly office/light industrial on Crooker Property (Crooker moving in 2011 to MDOT site)	10 – 15 years	-	145	390
		200,000 s.f. commercial/office west of I-95 (Similar mix as mall)	10 years	375	750	750
B	MUC – Mixed Use Commercial	500,000 s.f. commercial/retail along Rte 196 west of I-95	10 years	505	1515	1515
		400,000 s.f. commercial/retail/light industrial/office along Rte 196 east of I-95 (Topsham Fair Mall Road)*	15 years	476	952	1428
C	UV – Upper Village	200,000 – 300,000 s.f. office/light industrial near the school	10 – 15 years	-	155	309
		Redevelopment of Naval Annex site with light industrial and office uses (roughly 100,000 s.f.)	10 – 15 years	-	62	124
D	R-1 – Urban Residential	150-200 homes near river off Summer, Winter, Middle and Oaks Streets	15 years	67	133	200
E	MUL – Mixed Use Limited	300 homes north of Rte 196 in existing MUL zone	3-5 years	288	288	288
	MUL – Mixed Use Limited (currently R-3 – Rural Residential)	250 homes north of Rte 196, east of existing MUL zone	10 years	123	245	245
	MUL – Mixed Use Limited	200 homes north of Rte 196, north of existing MUL zone	10 years	100	200	200
F	R-2 – Suburban Residential	Landing/boat ramp off Foreside Road near Cow Island	5 years	10	10	10
G	LV – Lower Village	35,000 s.f. office (already approved)	1-2 years	52	52	52
		15,000 s.f. restaurant (already approved)	1-2 years	164	164	164
H	R-2 – Suburban Residential	100 homes east of White House Crossing Road	10 years	54	107	107
		200-300 homes west of White House Crossing Road	10-15 years	-	144	288
I	RCU – Rural Commercial Use	200,000 s.f. retail/service along Rte 196 (including car dealerships, etc. – some to be relocated from Rte 196/201 area)	10-15 years	-	198	595
J	I – Industrial	Gravel pits and recycling mill (Industrial zone expanding to include road frontage on Rte 196)	10 years	-	99	99
	I – Industrial	Crooker Property moving to current MDOT site	7 years	-	58	58
K	R-3 – Rural Residential	40 homes near Merrill Road	5 years	47	47	47
L	R-3 – Rural Residential	Landing/boat access off Murder Road near Mustard Island	5 years	10	10	10
M	R-3 – Rural Residential (to become R-2 – Suburban Residential)	Existing rural residential land to become suburban residential, allowing denser construction of homes – estimate 200 homes	10-15 years	-	67	200
Total**				2521	5903	7581

\*Note: This includes the 200,000 s.f. of retail included in Task 1.

\*\*Note: Many of these trips will be shared between residential, retail, commercial, and office land uses.

**FUTURE LAND USE PLAN  
(10 YEAR PLAN)  
TOWN OF TOPSHAM**





NOTE:  
COLLECTED ON THURSDAY JULY 29, 2004

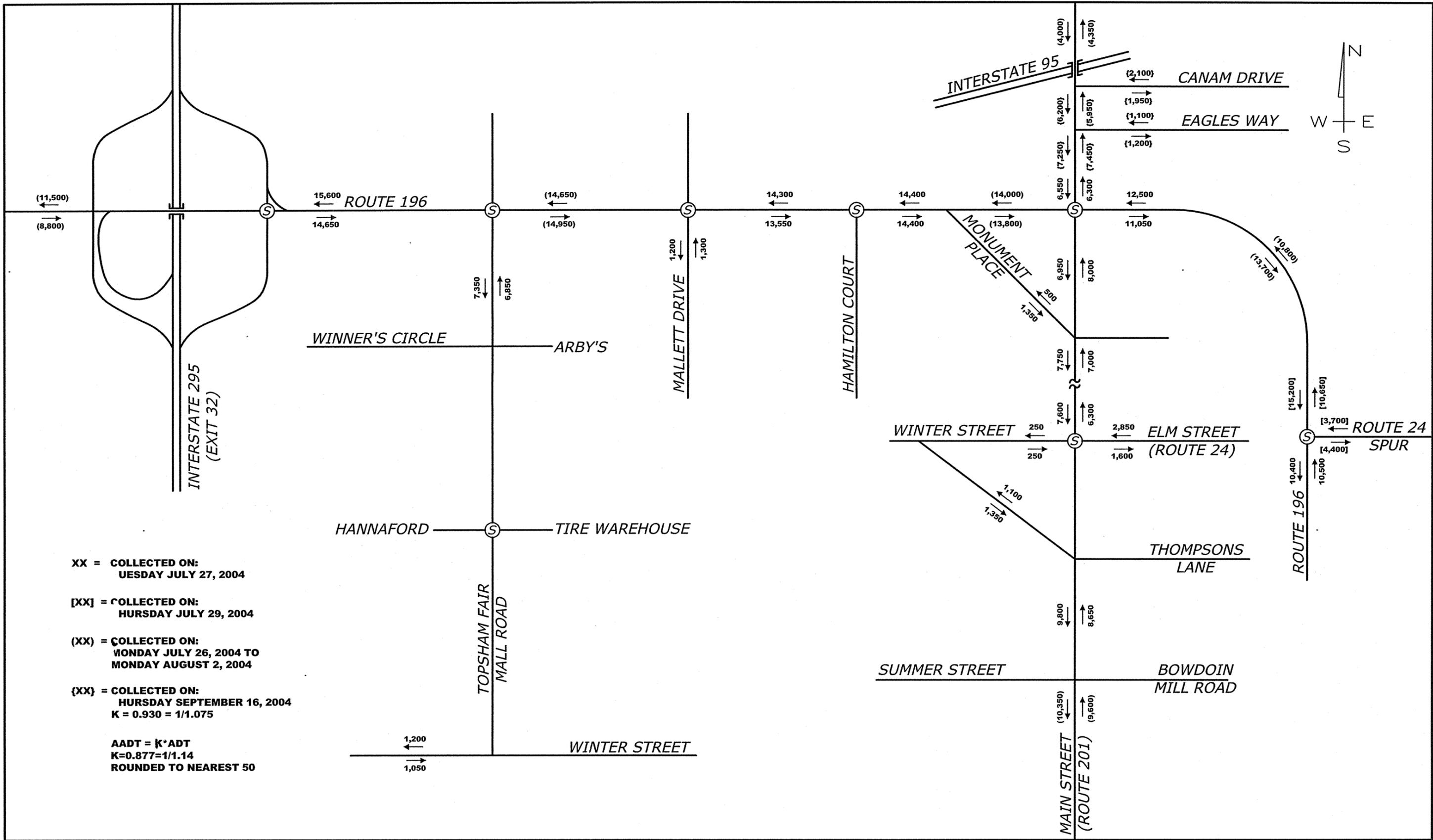
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Draft:	DB	Job No.:	974
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File Name:	974-TRAF.DWG		

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 Traffic and Civil Engineering Services  
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Drawing Name: License Plate Data Locations  
 Project: TOPSHAM TRANSPORTATION STUDY  
 TOPSHAM, MAINE

Figure No. **1**



Rev.	Date	Revision
-	-	-

Design: RLB	Date: AUG 2004
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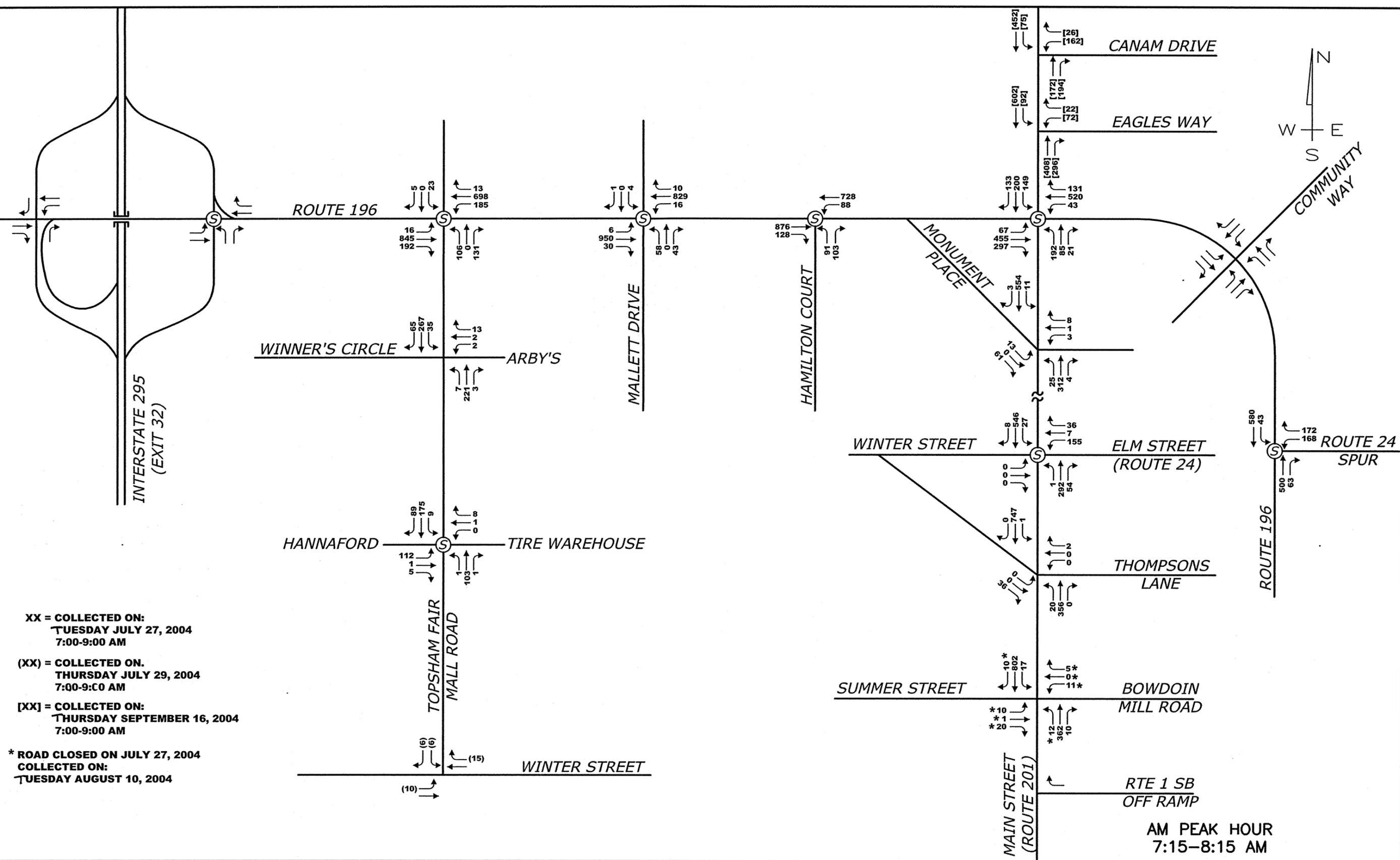
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Drawing Name: 2004 AADT Volumes

Project: TOPSHAM TRANSPORTATION STUDY  
 TOPSHAM, MAINE

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TUESDAY JULY 27, 2004  
7:00-9:00 AM**

**(XX) = COLLECTED ON:  
THURSDAY JULY 29, 2004  
7:00-9:00 AM**

**[XX] = COLLECTED ON:  
THURSDAY SEPTEMBER 16, 2004  
7:00-9:00 AM**

**\* ROAD CLOSED ON JULY 27, 2004  
COLLECTED ON:  
TUESDAY AUGUST 10, 2004**

Rev.	Date	Revision

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
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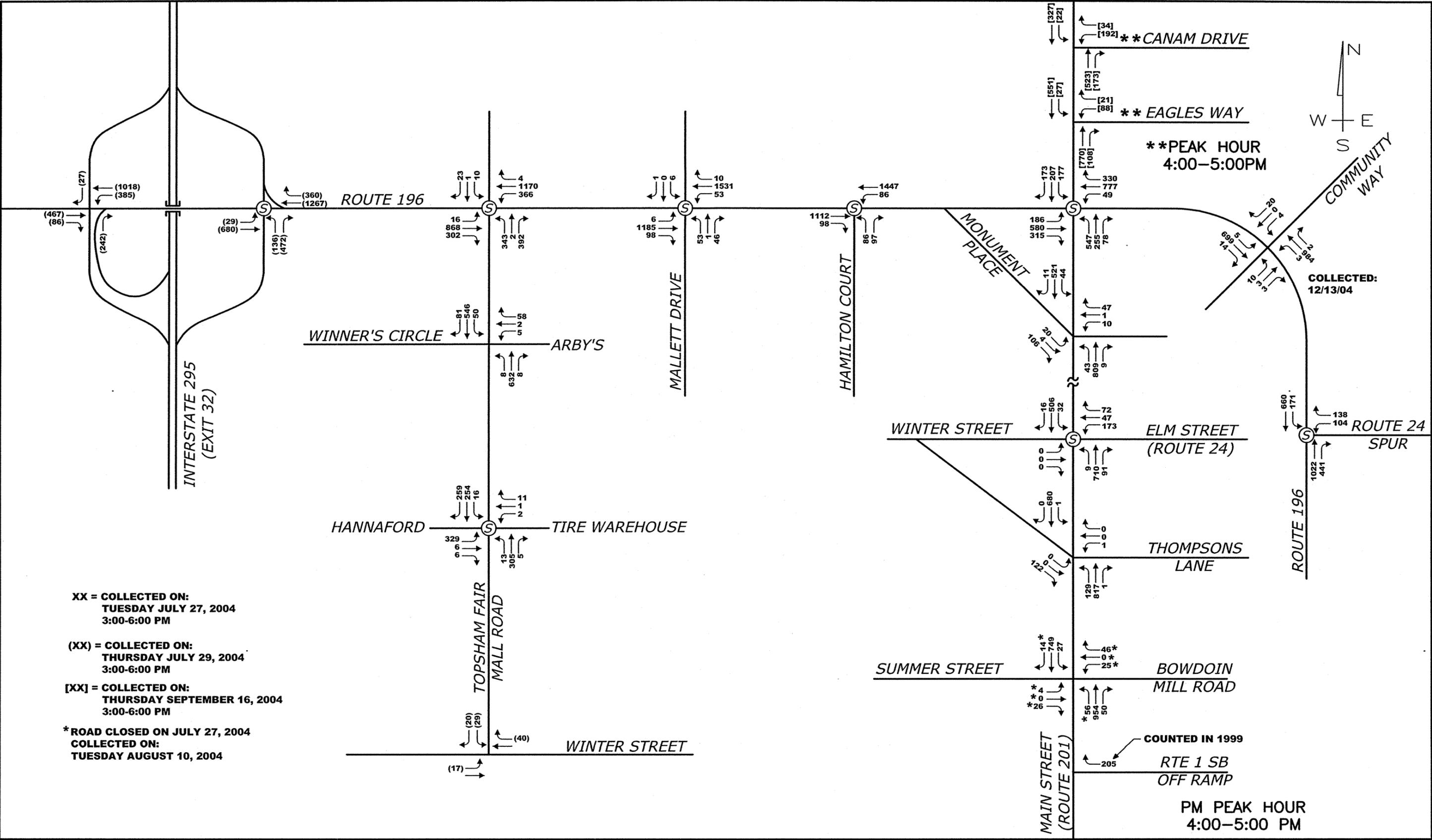
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Drawing Name: **2004 Raw Volumes**

Project: **TOPSHAM TRANSPORTATION STUDY  
TOPSHAM, MAINE**

Figure No.  
**3**



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TUESDAY JULY 27, 2004  
3:00-6:00 PM

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THURSDAY JULY 29, 2004  
3:00-6:00 PM

**[XX] = COLLECTED ON:**  
THURSDAY SEPTEMBER 16, 2004  
3:00-6:00 PM

**\* ROAD CLOSED ON JULY 27, 2004**  
**COLLECTED ON:**  
TUESDAY AUGUST 10, 2004

Rev.	Date	Revision

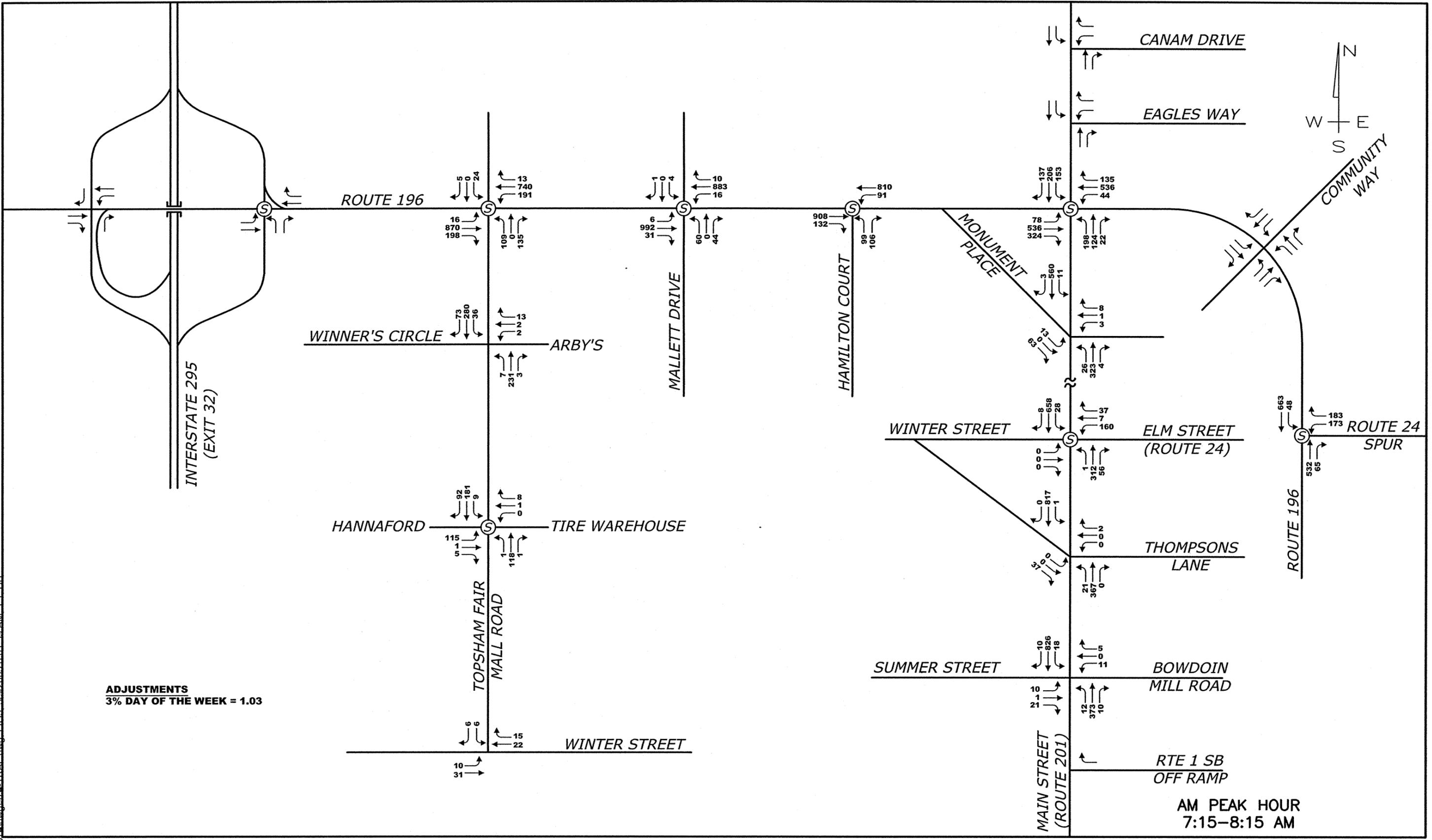
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Drawing Name:	<b>2004 Raw Volumes</b>
Project:	<b>TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE</b>

Figure No.	<b>4</b>
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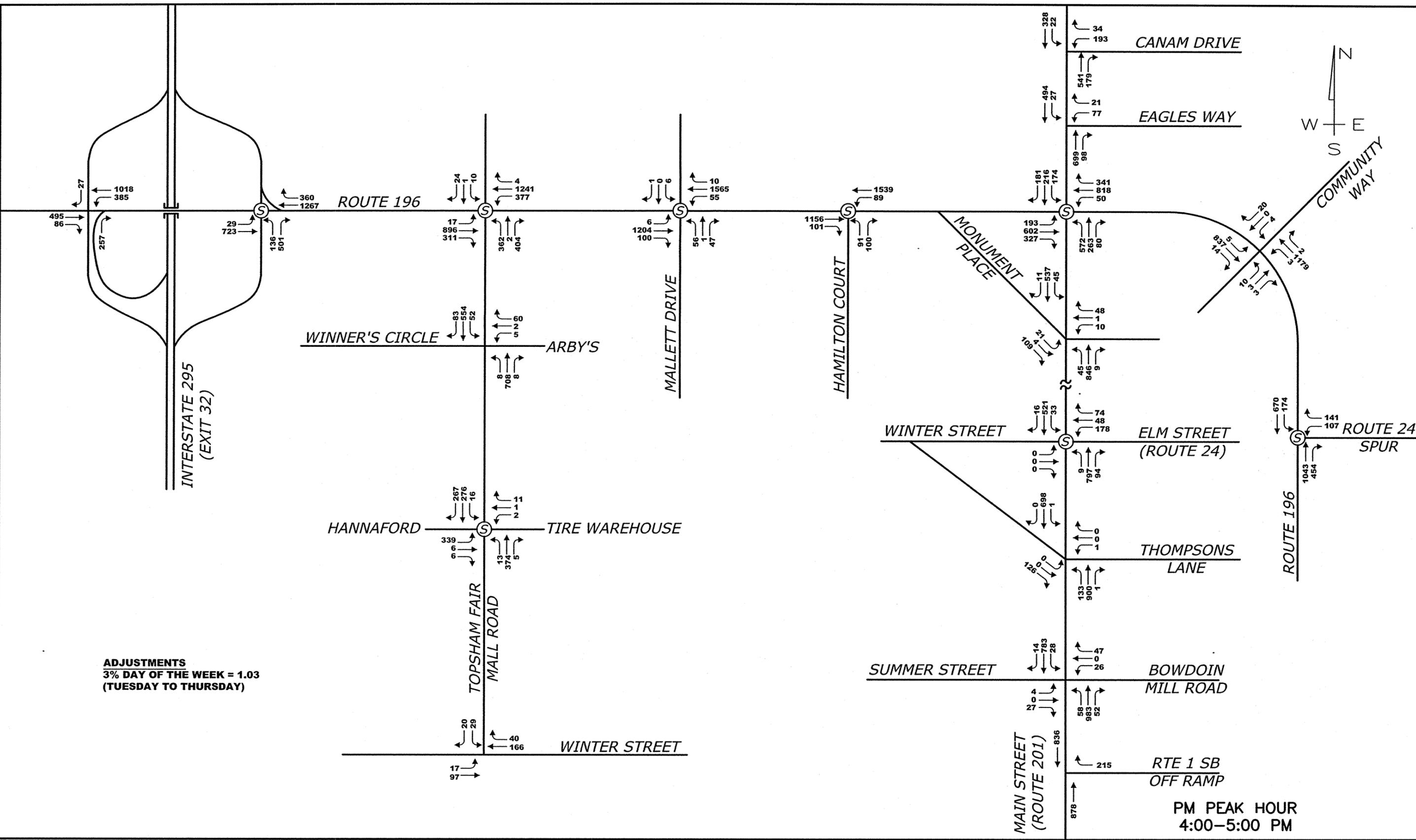
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Drawing Name:	2004 Balanced & Adjusted Volumes
Project:	TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE

Figure No.  
**5**



**ADJUSTMENTS**  
 3% DAY OF THE WEEK = 1.03  
 (TUESDAY TO THURSDAY)

Rev.	Date	Revision
-	-	-

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Draft: DB	Job No.: 974
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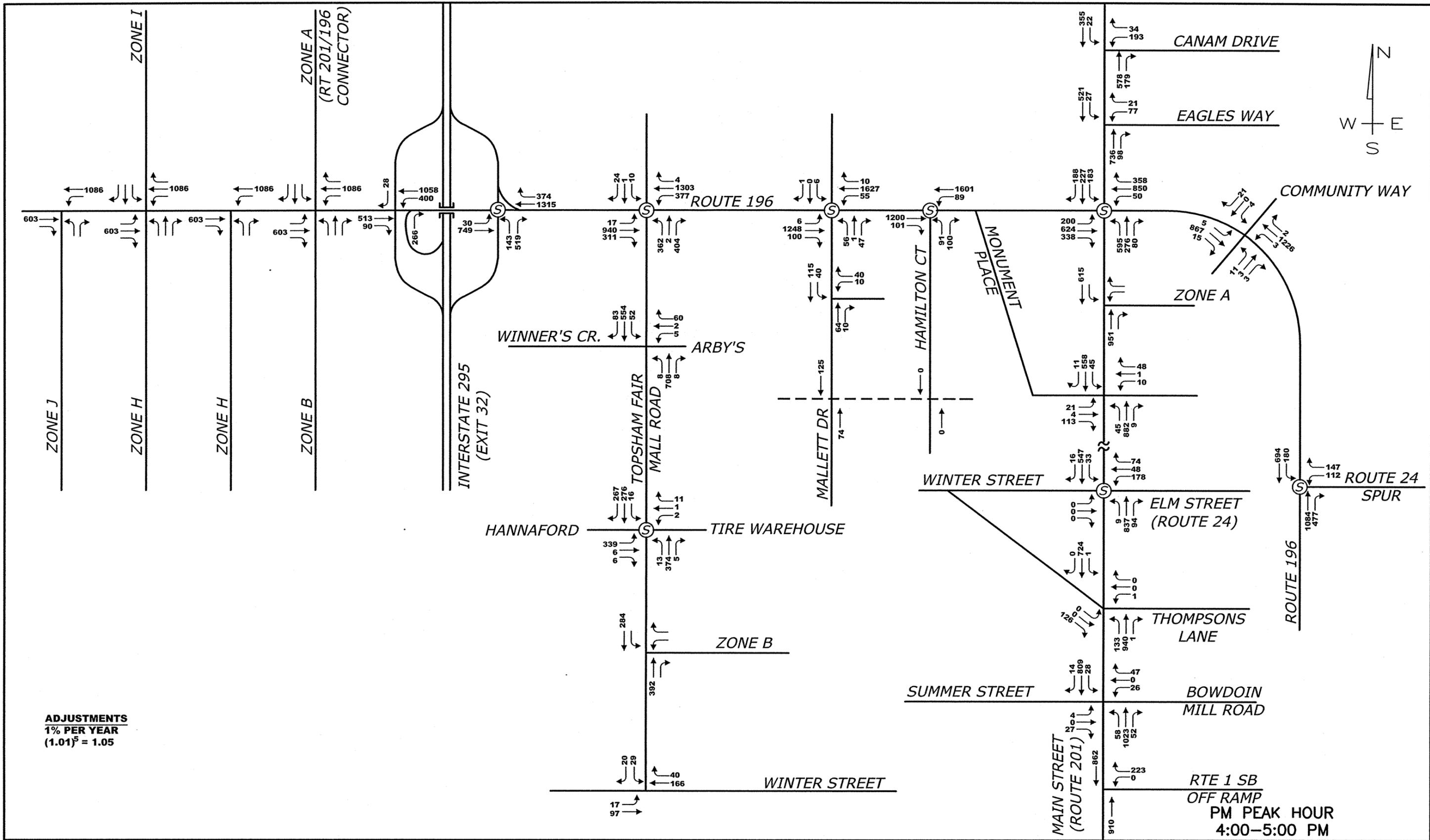
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Drawing Name:	2004 Balanced & Adjusted Volumes
Project:	TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE

Figure No.	6
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Rev.	Date	Revision

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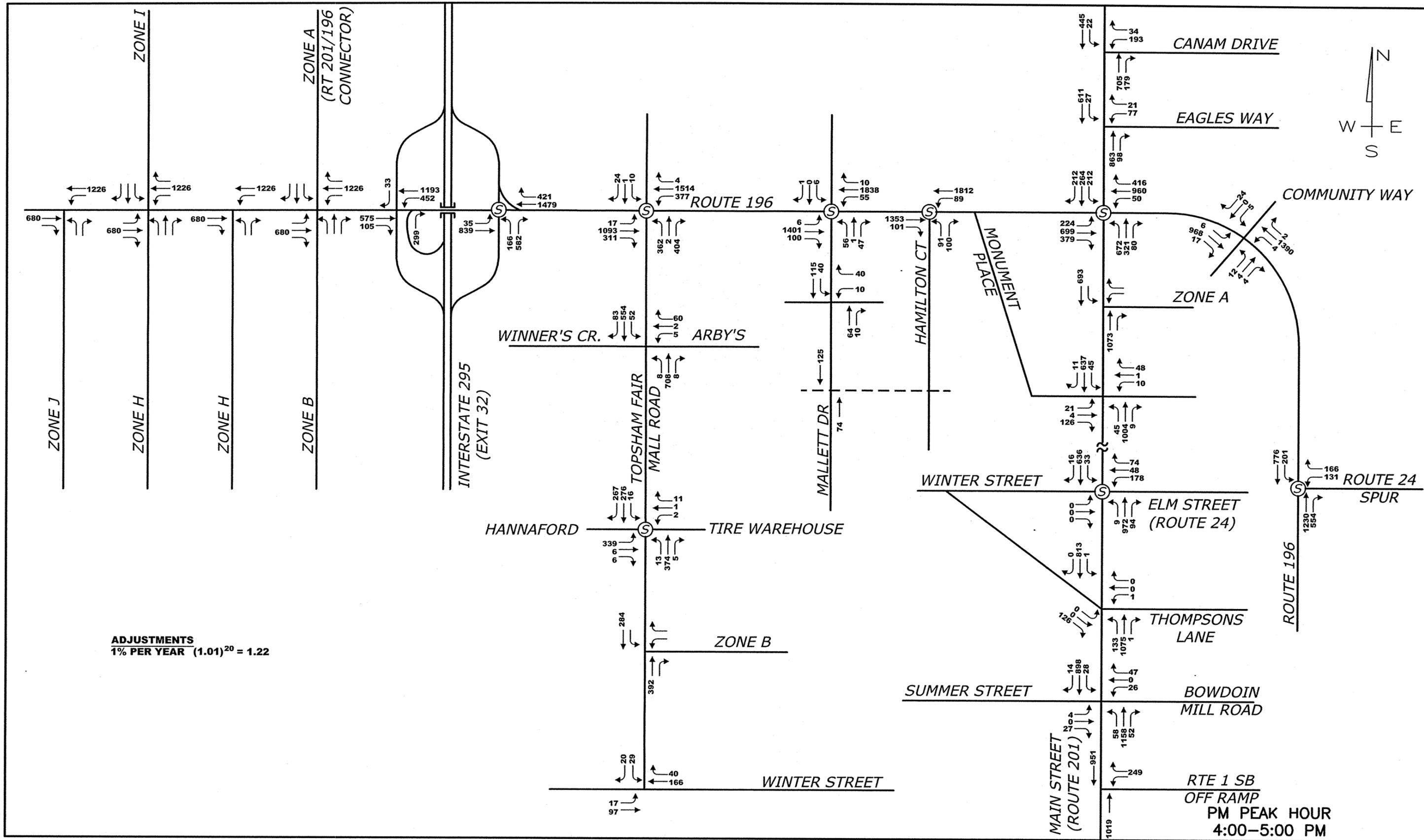
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Drawing Name:	2009 Balanced and Adjusted Volumes
Project:	TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE

Figure No.	7
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Rev.	Date	Revision
-	-	-

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
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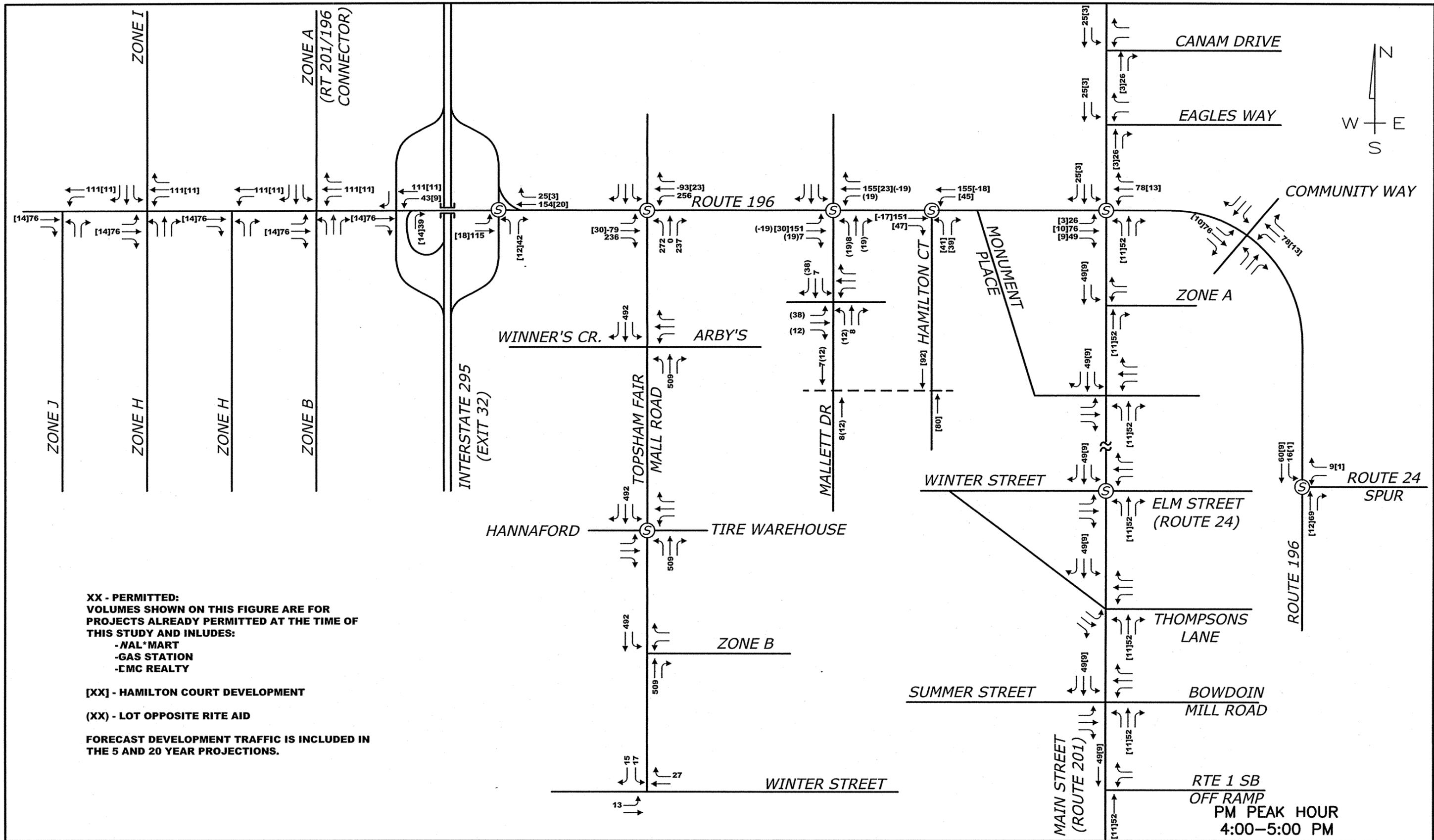
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Drawing Name: **2024 Balanced & Adjusted Volumes**

Project: **TOPSHAM TRANSPORTATION STUDY  
 TOPSHAM, MAINE**

Figure No.  
**8**



Rev.	Date	Revision
-	-	-

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
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File Name: 974-TRAF.DWG	

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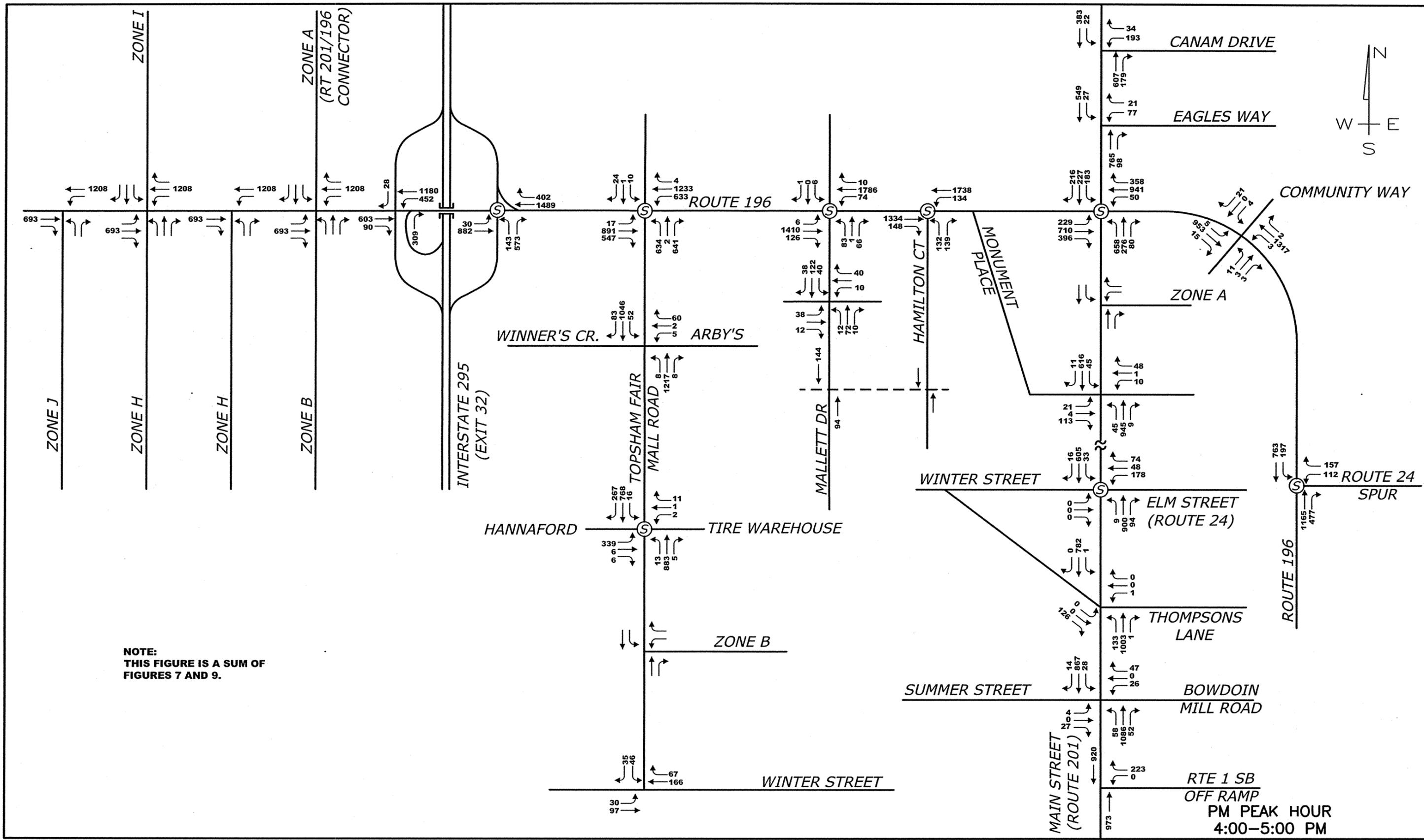
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 FAX: 207-657-6912  
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Drawing Name: **Other Development**

Project: **TOPSHAM TRANSPORTATION STUDY  
 TOPSHAM, MAINE**

Figure No.  
**9**



Rev.	Date	Revision

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
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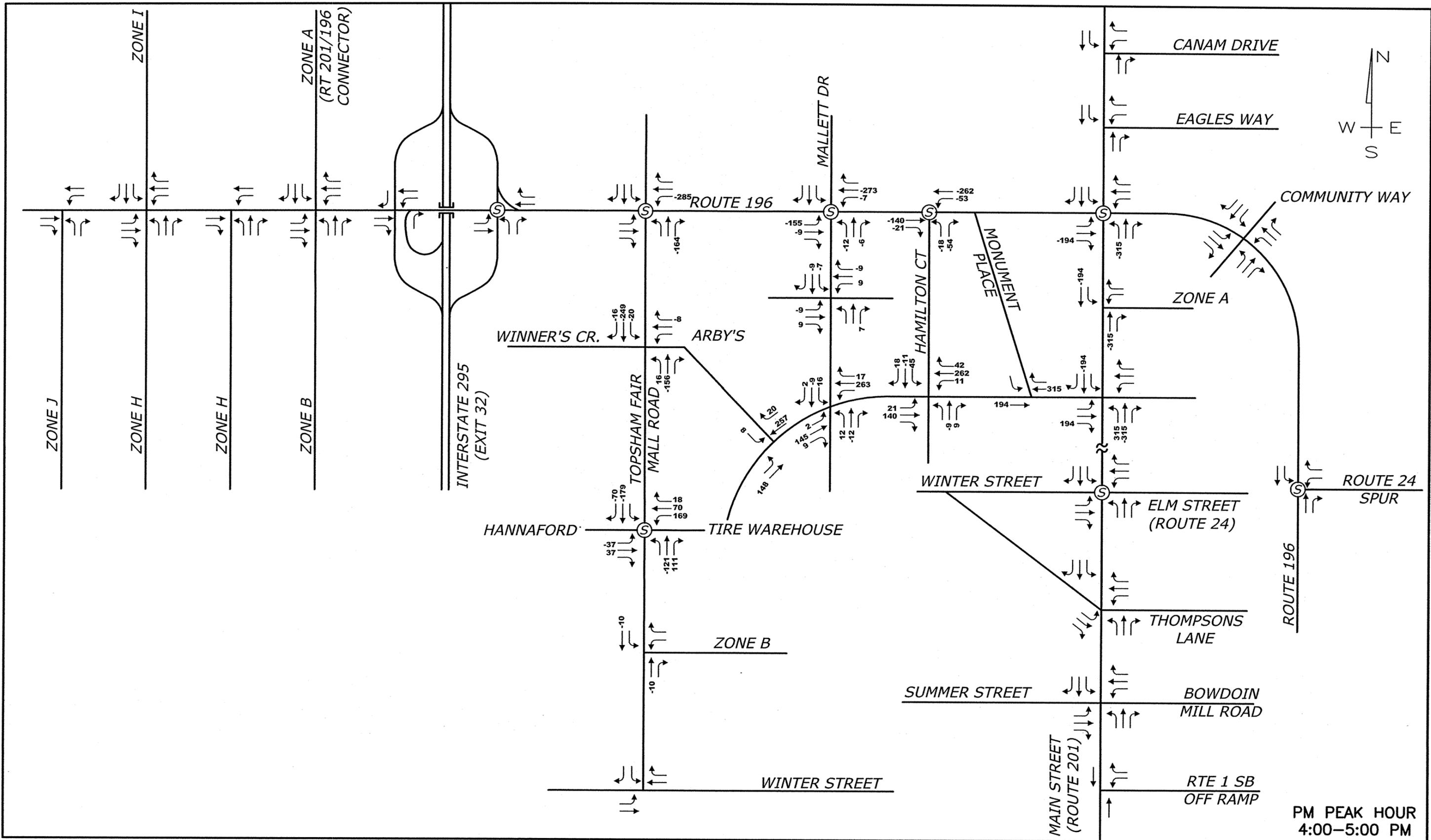
**GP** Gorrill-Palmer Consulting Engineers, Inc.  
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 207-657-6910  
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Drawing Name: **2009 Volumes**  
 Without Monument Place Extension

Project: **TOPSHAM TRANSPORTATION STUDY**  
**TOPSHAM, MAINE**

Figure No.  
**10**



PM PEAK HOUR  
4:00-5:00 PM

Rev.	Date	Revision
-	-	-
-	-	-

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
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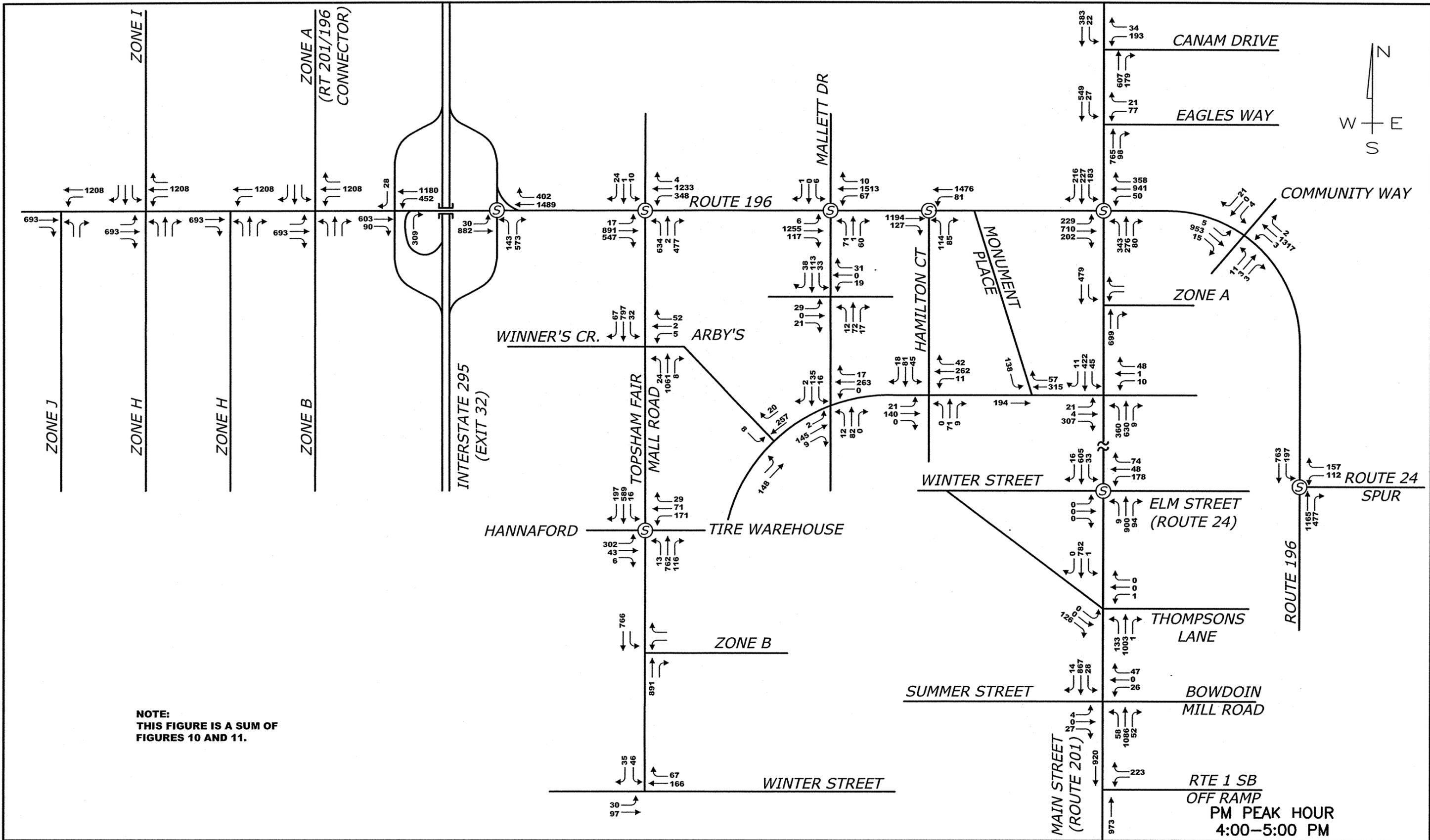
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 FAX: 207-657-6912  
 E-Mail: mailbox@gorrillpalmer.com

Drawing Name: **2009 Trip Reassignment  
 Monument Place Extension**

Project: **TOPSHAM TRANSPORTATION STUDY  
 TOPSHAM, MAINE**

Figure No.  
**11**



Rev.	Date	Revision
-	-	-

Design:	RLB	Date:	AUG 2004
Draft:	DB	Job No.:	974
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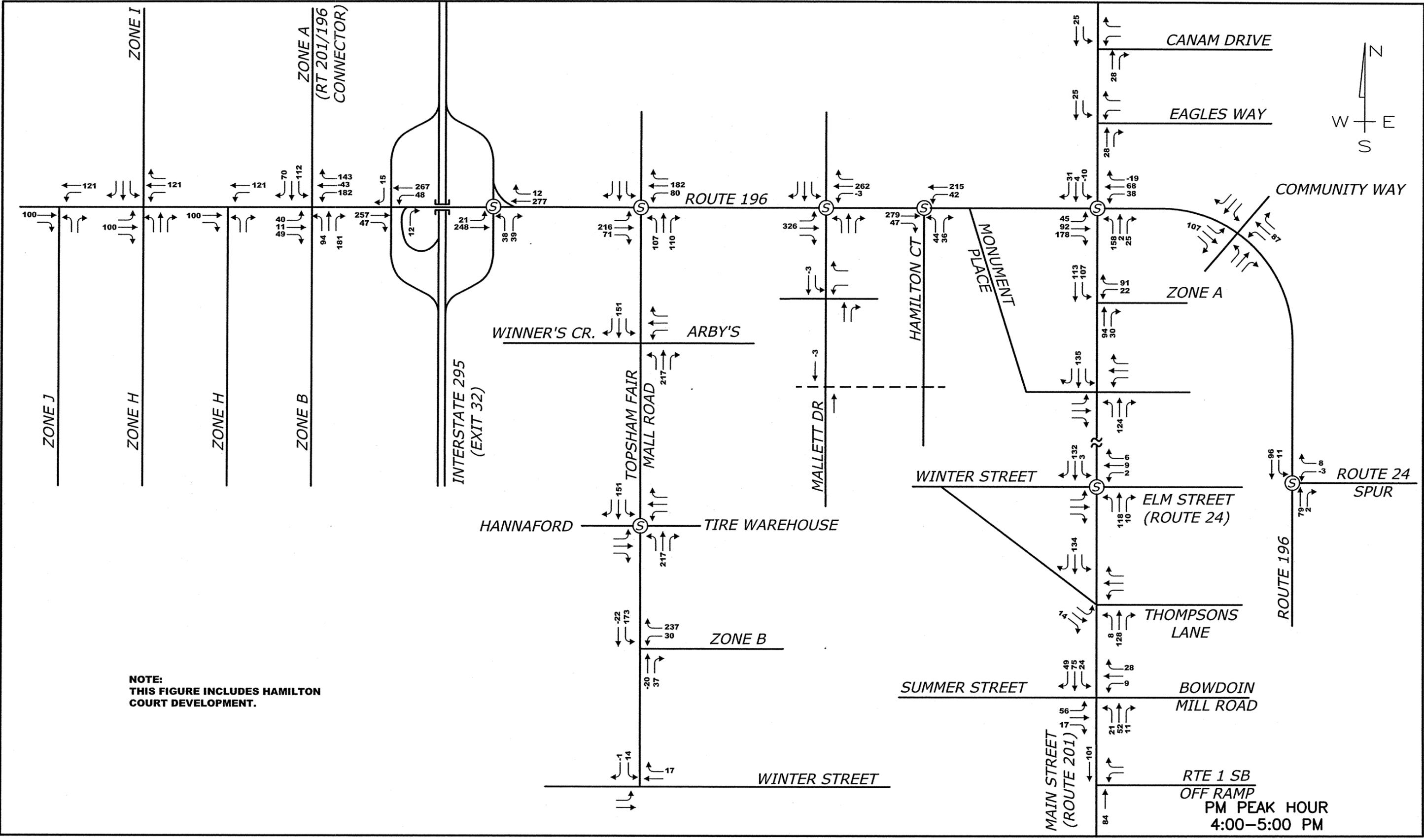
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 FAX: 207-657-6912  
 E-Mail: mailbox@gorrillpalmer.com

Drawing Name: **2009 Volumes**  
 With Monument Place Extension

Project: **TOPSHAM TRANSPORTATION STUDY**  
**TOPSHAM, MAINE**

Figure No.
<b>12</b>



**NOTE:**  
THIS FIGURE INCLUDES HAMILTON  
COURT DEVELOPMENT.

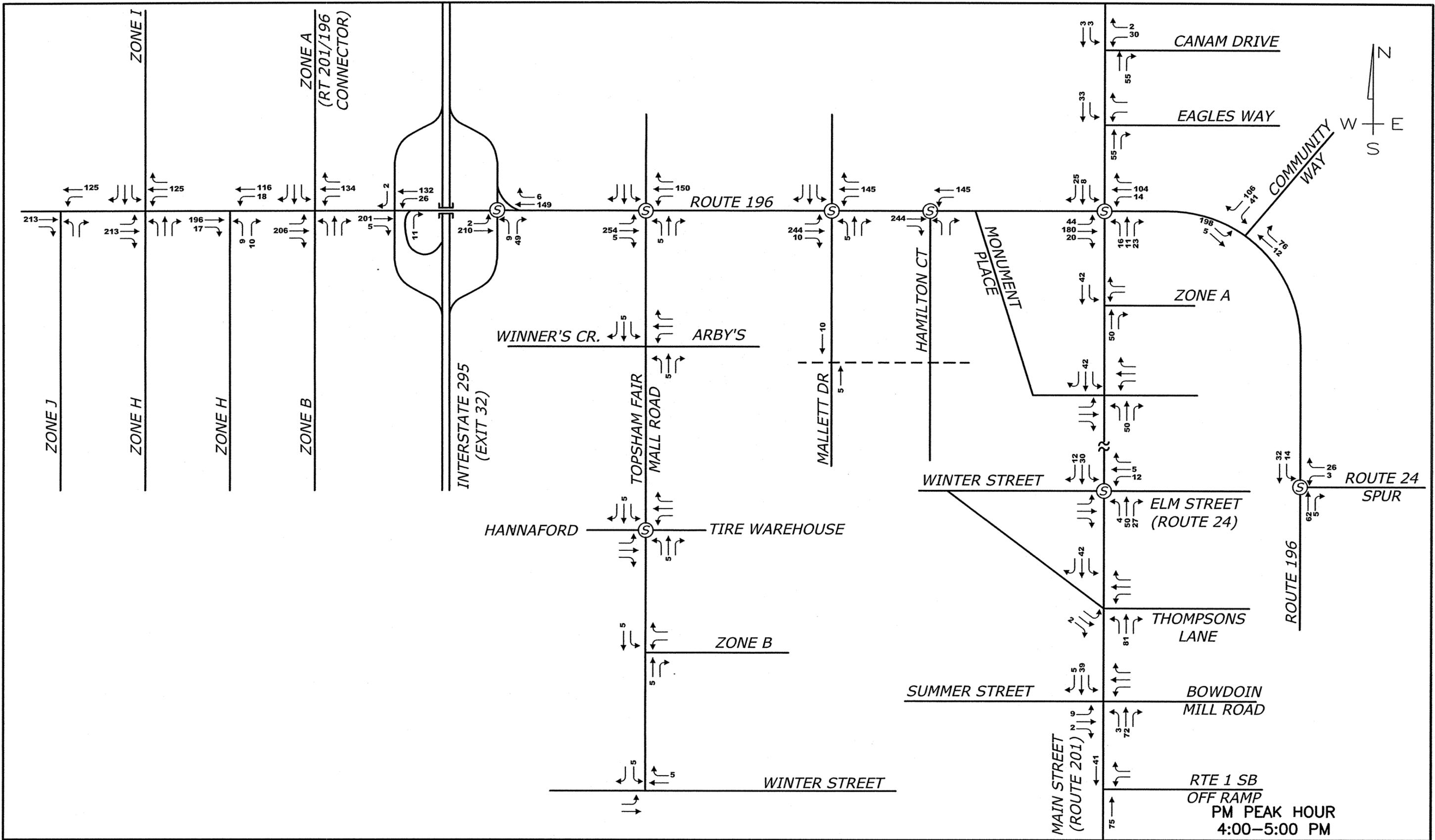
Rev.	Date	Revision

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Draft: DB	Job No.: 974
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File Name: 974-TRAF.DWG	

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 207-657-6910  
 FAX: 207-657-6912  
 E-Mail: mailbox@gorrillpalmer.com

Drawing Name: **Commercial Trip Assignment**  
 5 Year Plan  
 Project: **TOPSHAM TRANSPORTATION STUDY**  
 TOPSHAM, MAINE

Figure No.  
**13**



Rev.	Date	Revision
-	-	-

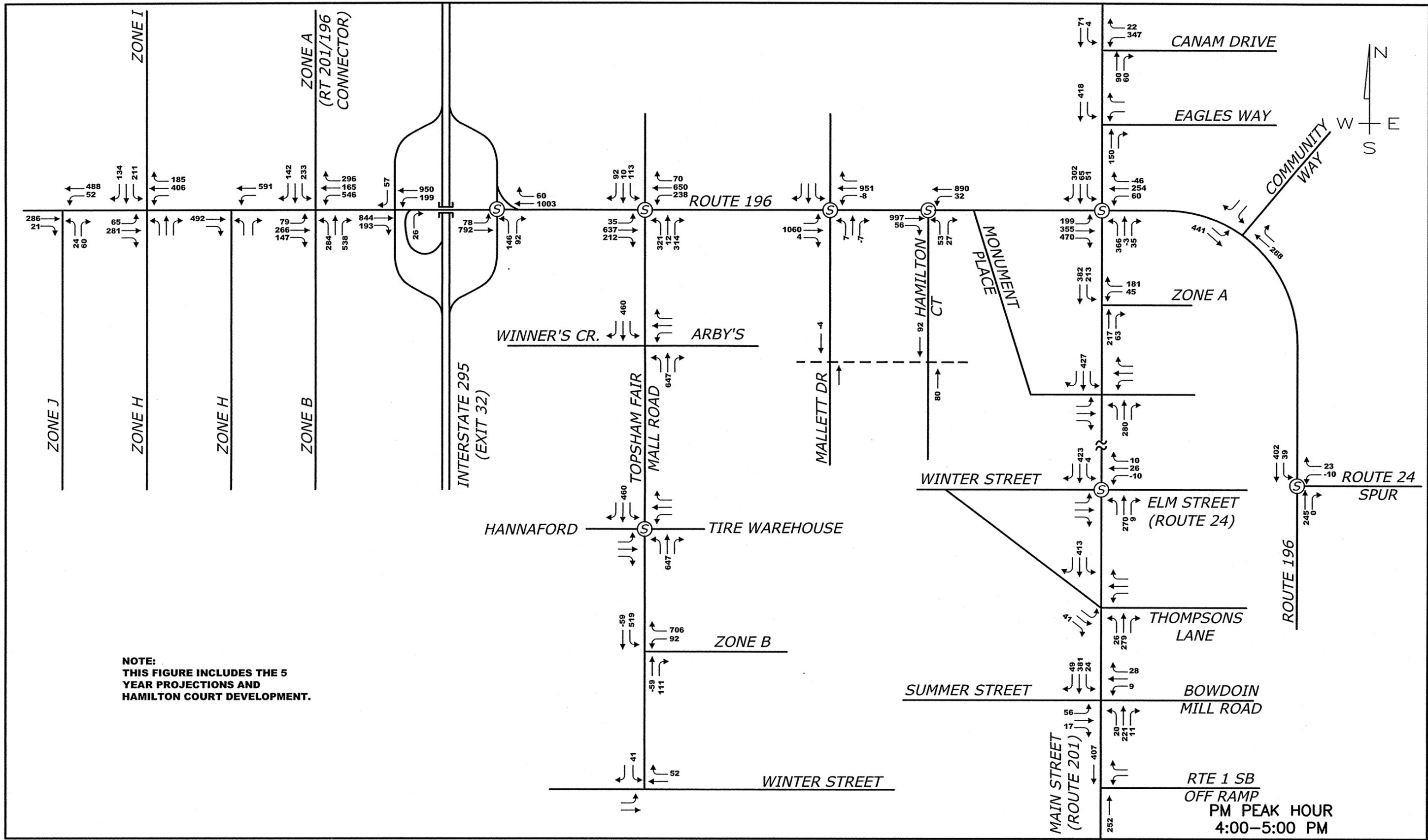
Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

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 Gray, ME 04039  
 207-657-6910  
 FAX: 207-657-6912  
 E-Mail: mailbox@gorrillpalmer.com

Drawing Name: Residential Trip Assignment  
 5 Year Plan

Project: TOPSHAM TRANSPORTATION STUDY  
 TOPSHAM, MAINE



Rev.	Date	Revision
-	-	-

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

**GP** Gorrill-Palmer Consulting Engineers, Inc.  
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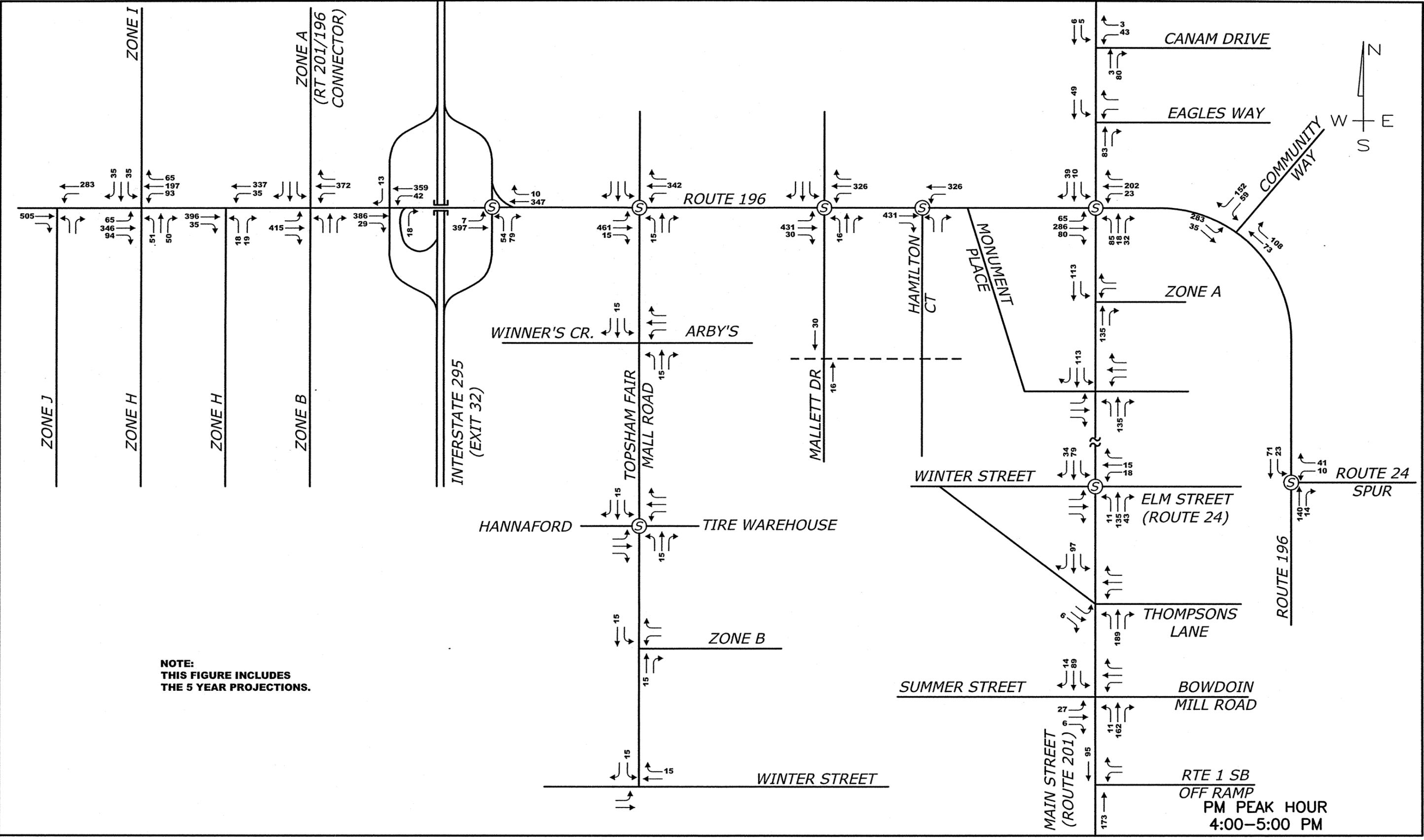
PO Box 1237  
 15 Shaker Road  
 Gray, ME 04039

207-657-6910  
 FAX: 207-657-6912  
 E-Mail: mailbox@gorrillpalmer.com

Drawing Name: **Commercial Trip Assignment**  
 20 Year Plan

Project: **TOPSHAM TRANSPORTATION STUDY**  
**TOPSHAM, MAINE**

Figure No.  
**15**



Rev.	Date	Revision
-	-	-

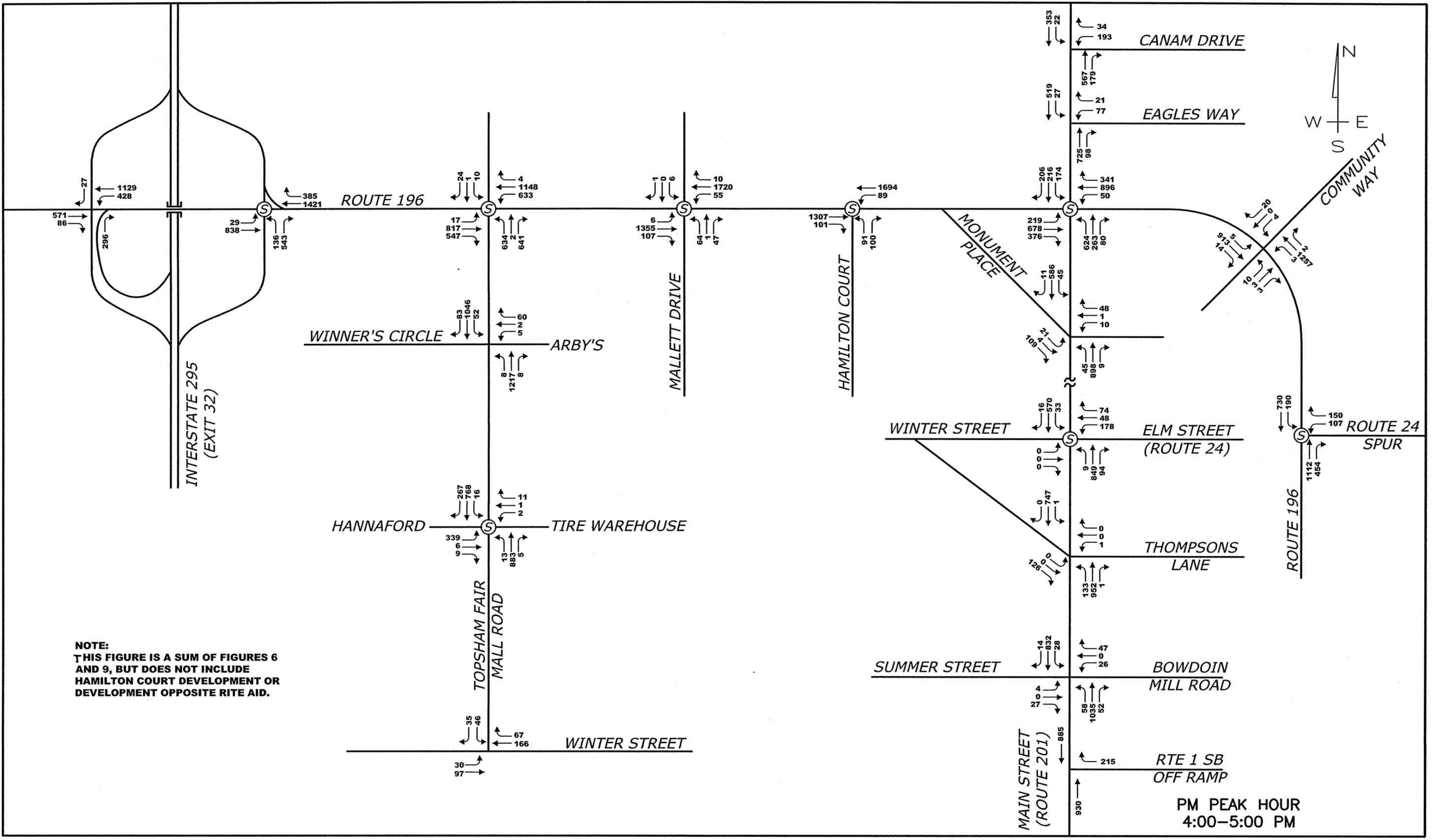
Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

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 207-657-6910  
 FAX: 207-657-6912  
 E-Mail: mailbox@gorrillpalmer.com

Drawing Name:	<b>Residential Trip Assignment 20 Year Plan</b>
Project:	<b>TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE</b>

Figure No.  
**16**



Rev.	Date	Revision

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

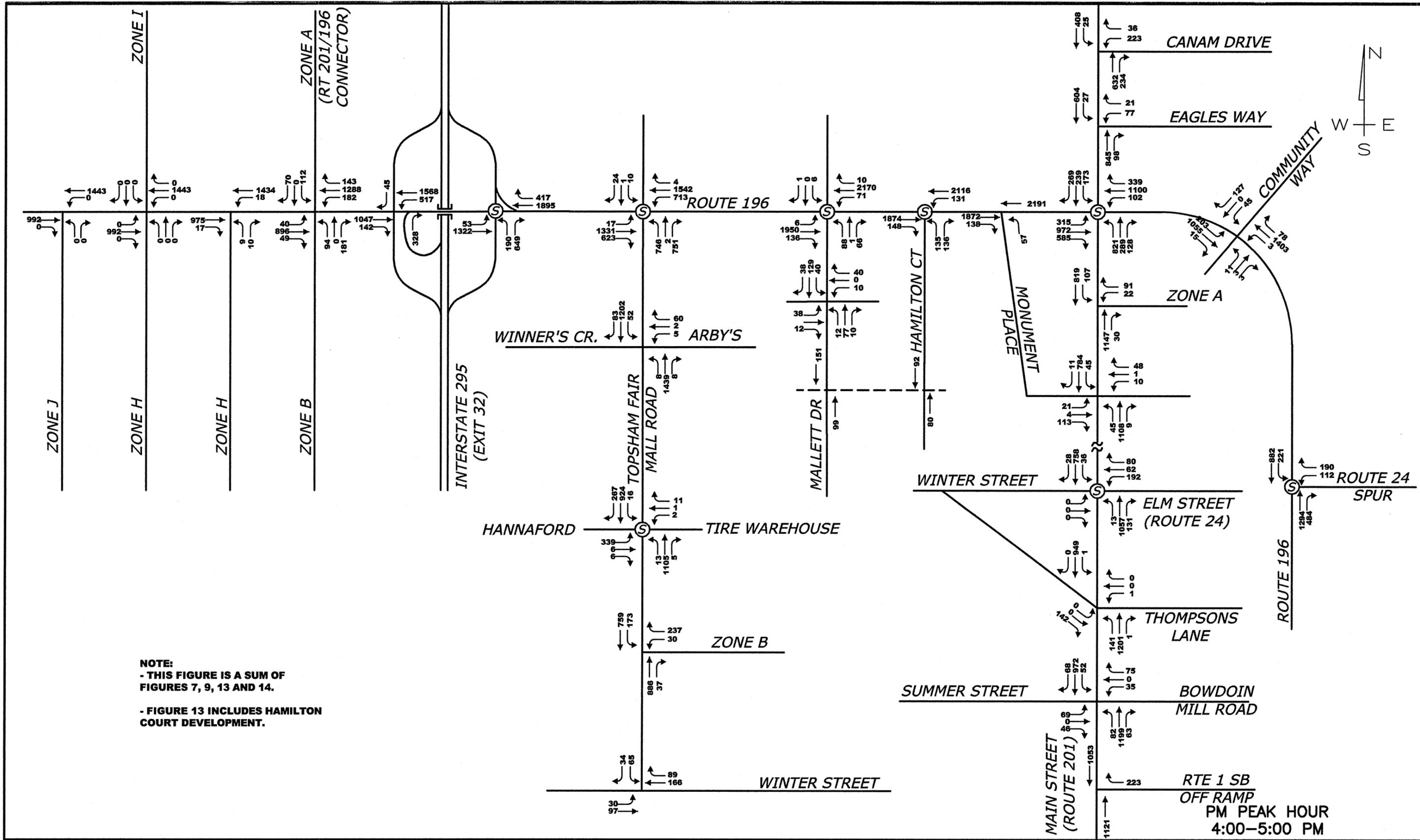
**GP** Gorrill-Palmer Consulting Engineers, Inc.  
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207-657-6910  
 FAX: 207-657-6912  
 E-Mail: mailbox@gorrillpalmer.com

Drawing Name:	2004 Design Hour Volumes
Project:	TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE

Figure No.  
**17**



**NOTE:**  
 - THIS FIGURE IS A SUM OF FIGURES 7, 9, 13 AND 14.  
 - FIGURE 13 INCLUDES HAMILTON COURT DEVELOPMENT.

RTE 1 SB  
 OFF RAMP  
 PM PEAK HOUR  
 4:00-5:00 PM

Rev.	Date	Revision

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

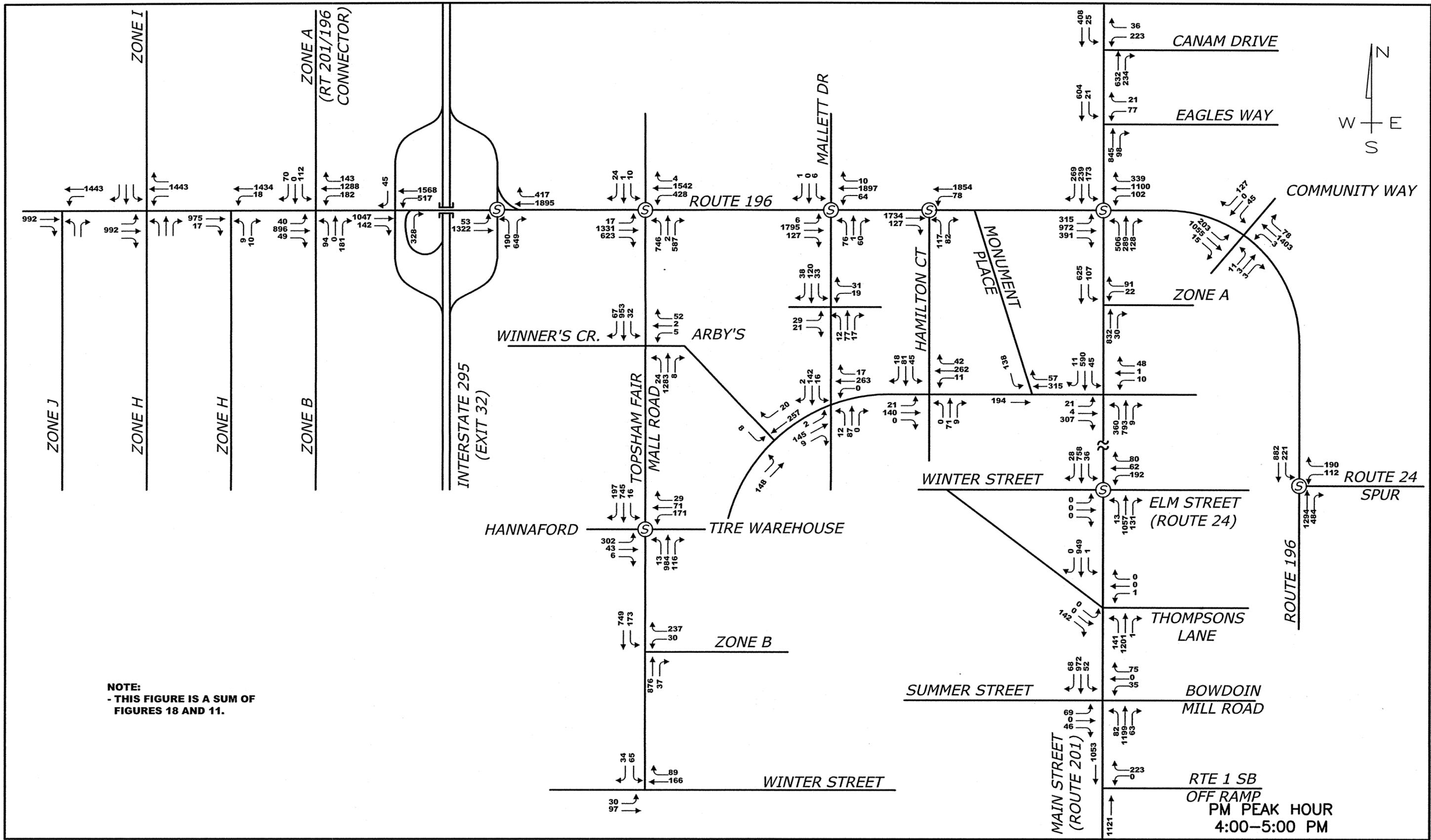
**GP** Gorrill-Palmer Consulting Engineers, Inc.  
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 15 Shaker Road  
 Gray, ME 04039

207-657-6910  
 FAX: 207-657-6912  
 E-Mail: mailbox@gorrillpalmer.com

Drawing Name:	2009 Design Hour Volumes
Project:	TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE

Figure No.  
**18**



Rev.	Date	Revision

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

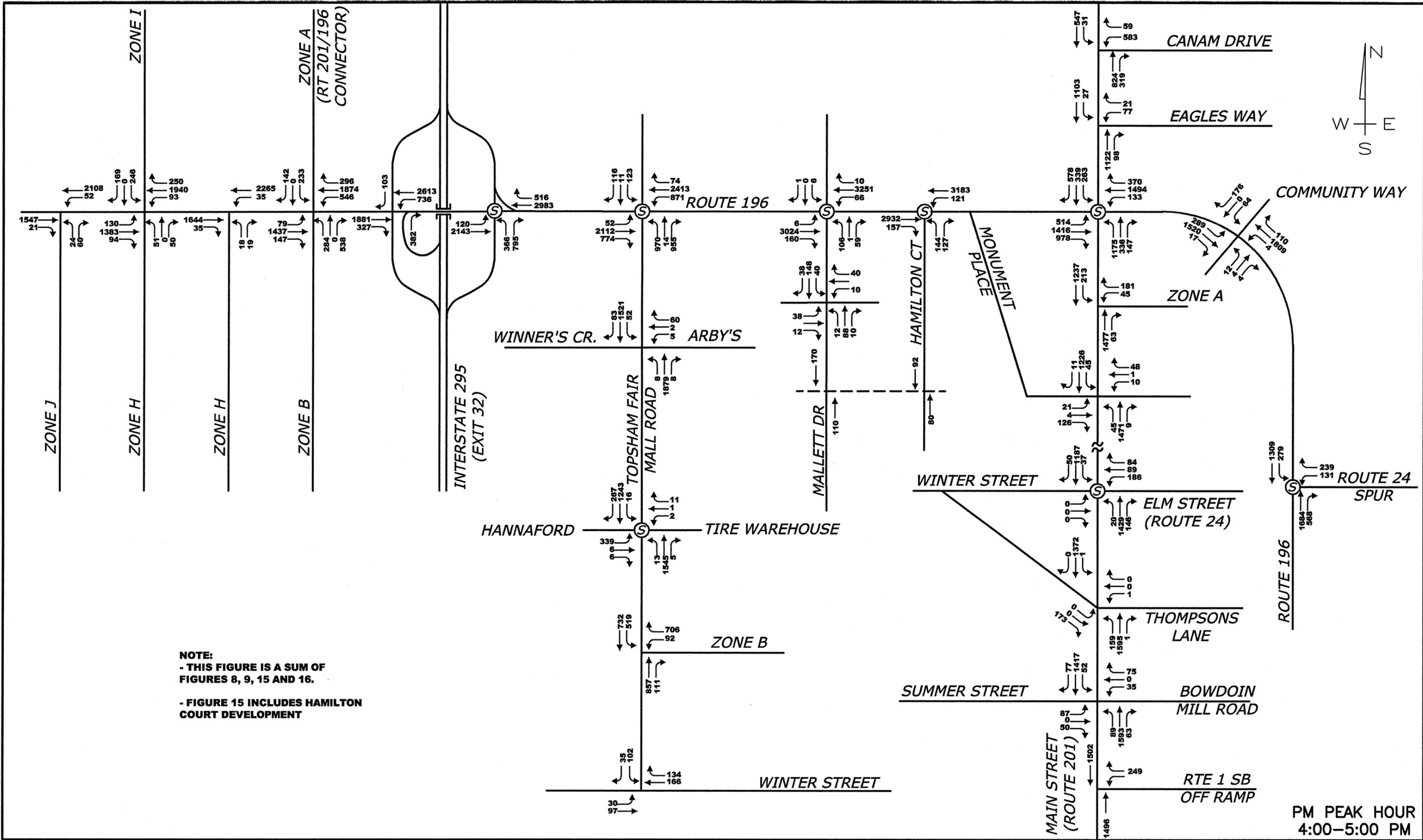
**GP** Gorrill-Palmer Consulting Engineers, Inc.  
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207-657-6910  
 FAX: 207-657-6912  
 E-Mail: mailbox@gorrillpalmer.com

Drawing Name:	2009 Design Volumes W/Monument Place Extension
Project:	TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE

Figure No.	19
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Rev.	Date	Revision
-	-	-

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

**GP** Gorrill-Palmer Consulting Engineers, Inc.  
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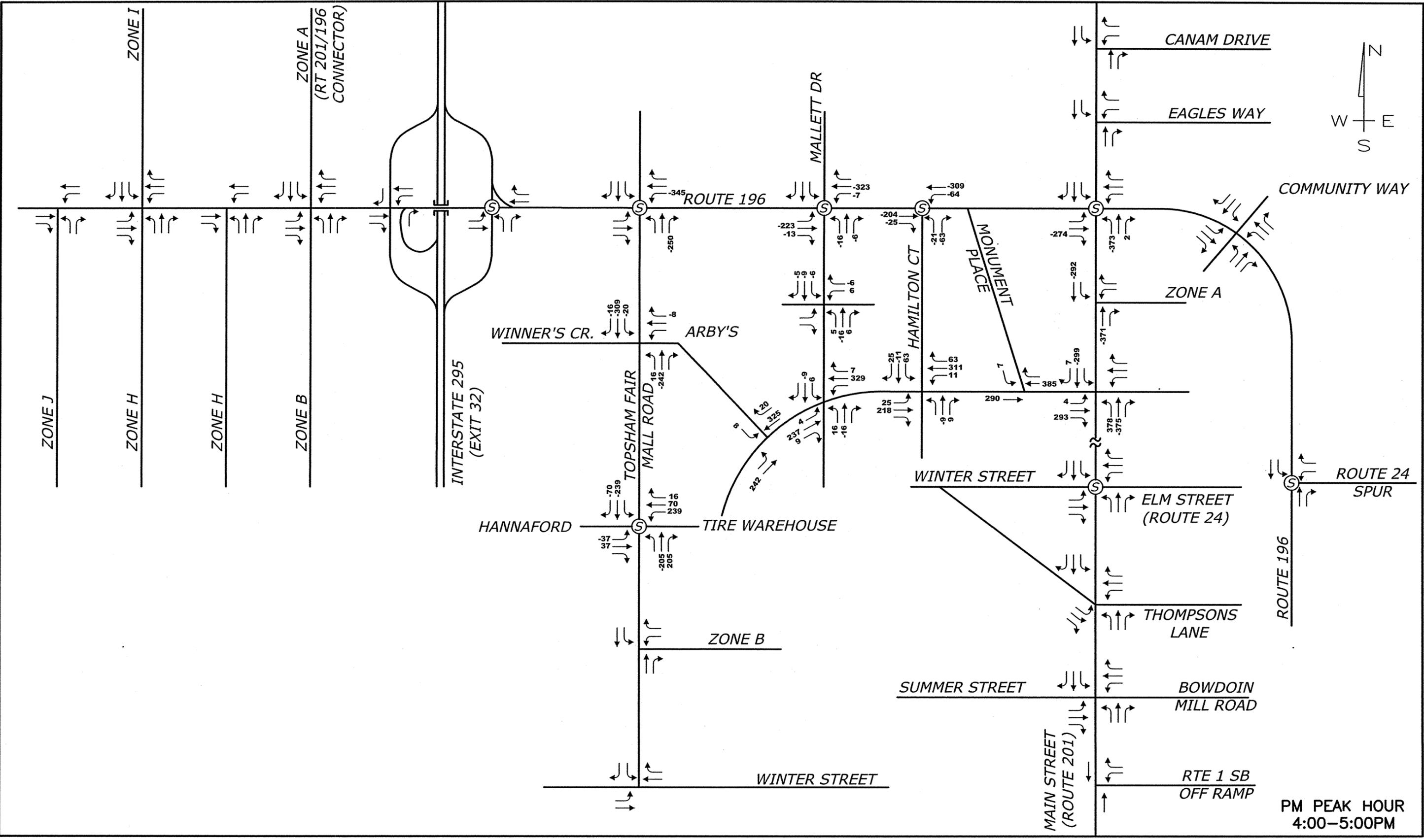
PO Box 1237  
 15 Shaker Road  
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207-657-6910  
 FAX: 207-657-6912  
 E-Mail: mailbox@gorrillpalmer.com

Drawing Name: **2024 Design Hour Volumes**

Project: **TOPSHAM TRANSPORTATION STUDY  
 TOPSHAM, MAINE**

Figure No.  
**20**



PM PEAK HOUR  
4:00-5:00PM

Rev.	Date	Revision

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

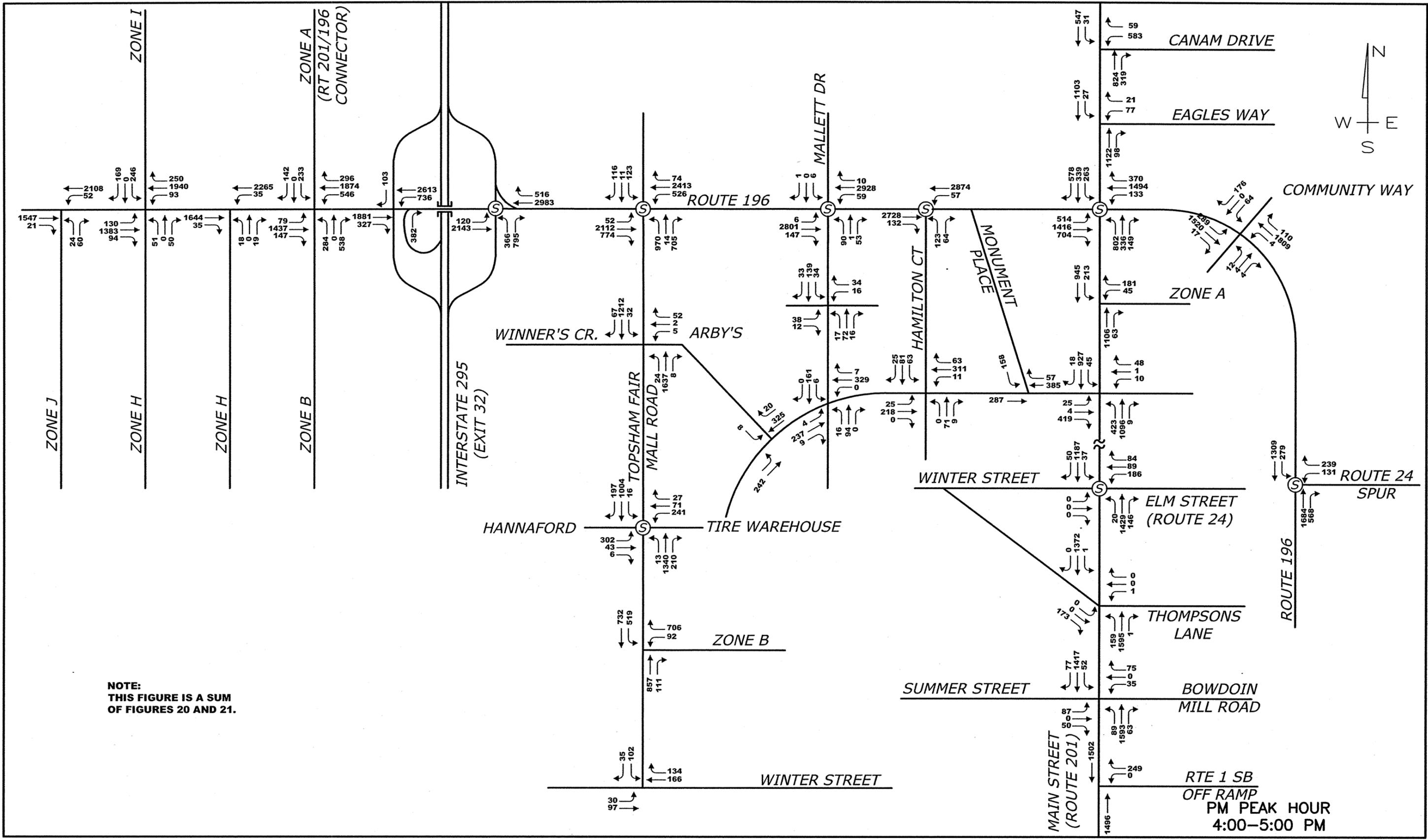
**GP** Gorrill-Palmer Consulting Engineers, Inc.  
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 15 Shaker Road  
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 207-657-6910  
 FAX: 207-657-6912  
 E-Mail: mailbox@gorrillpalmer.com

Drawing Name: **Monument Place Extension  
 2024 Trip Reassignment**

Project: **TOPSHAM TRANSPORTATION STUDY  
 TOPSHAM, MAINE**

Figure No.  
**21**



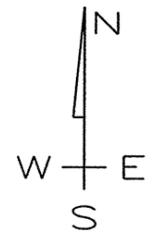
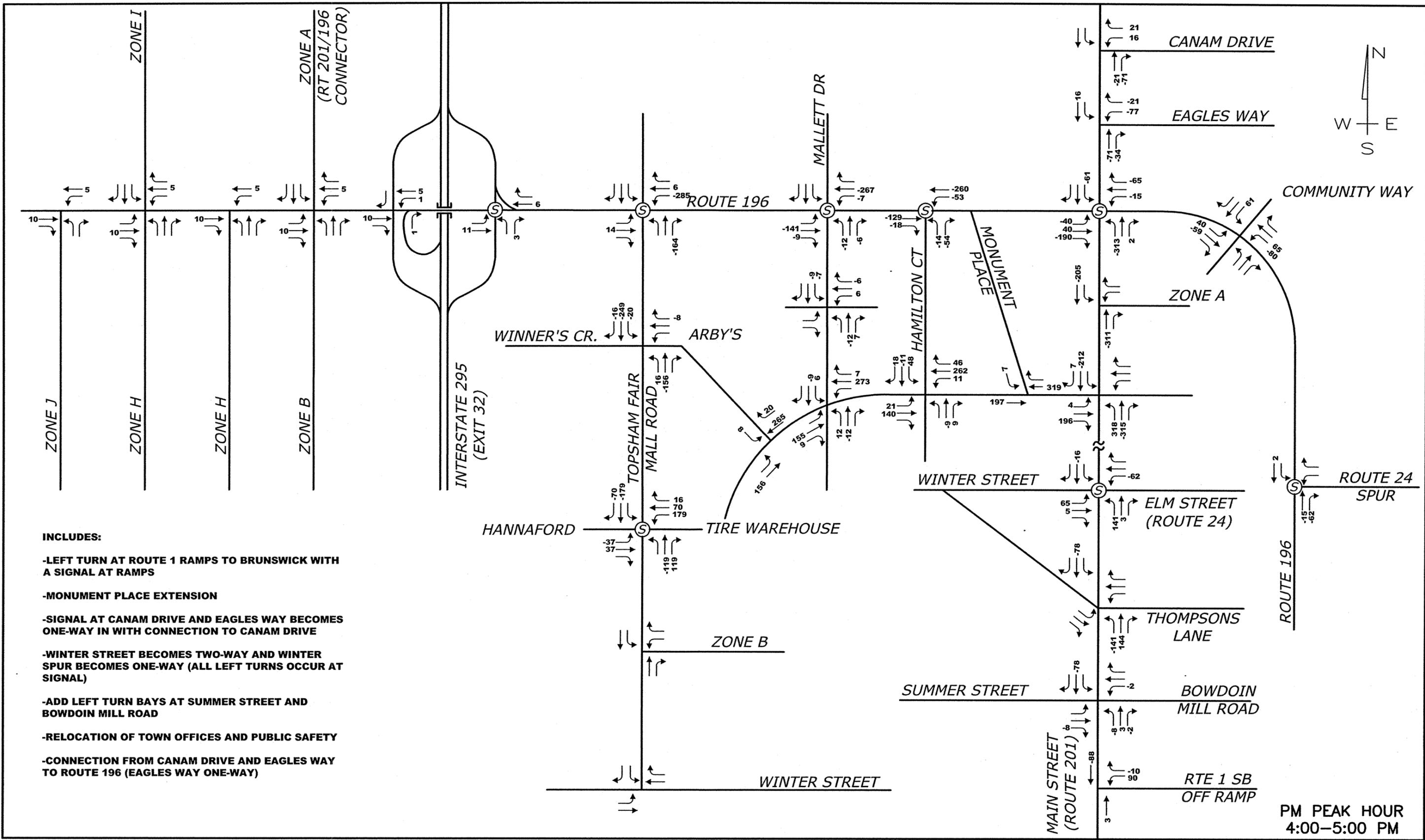
Rev.	Date	Revision

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

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 E-Mail: mailbox@gorrillpalmer.com

Drawing Name:	2024 Design Volumes W/Monument Place Extension
Project:	TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE

Figure No.	22
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PM PEAK HOUR  
4:00-5:00 PM

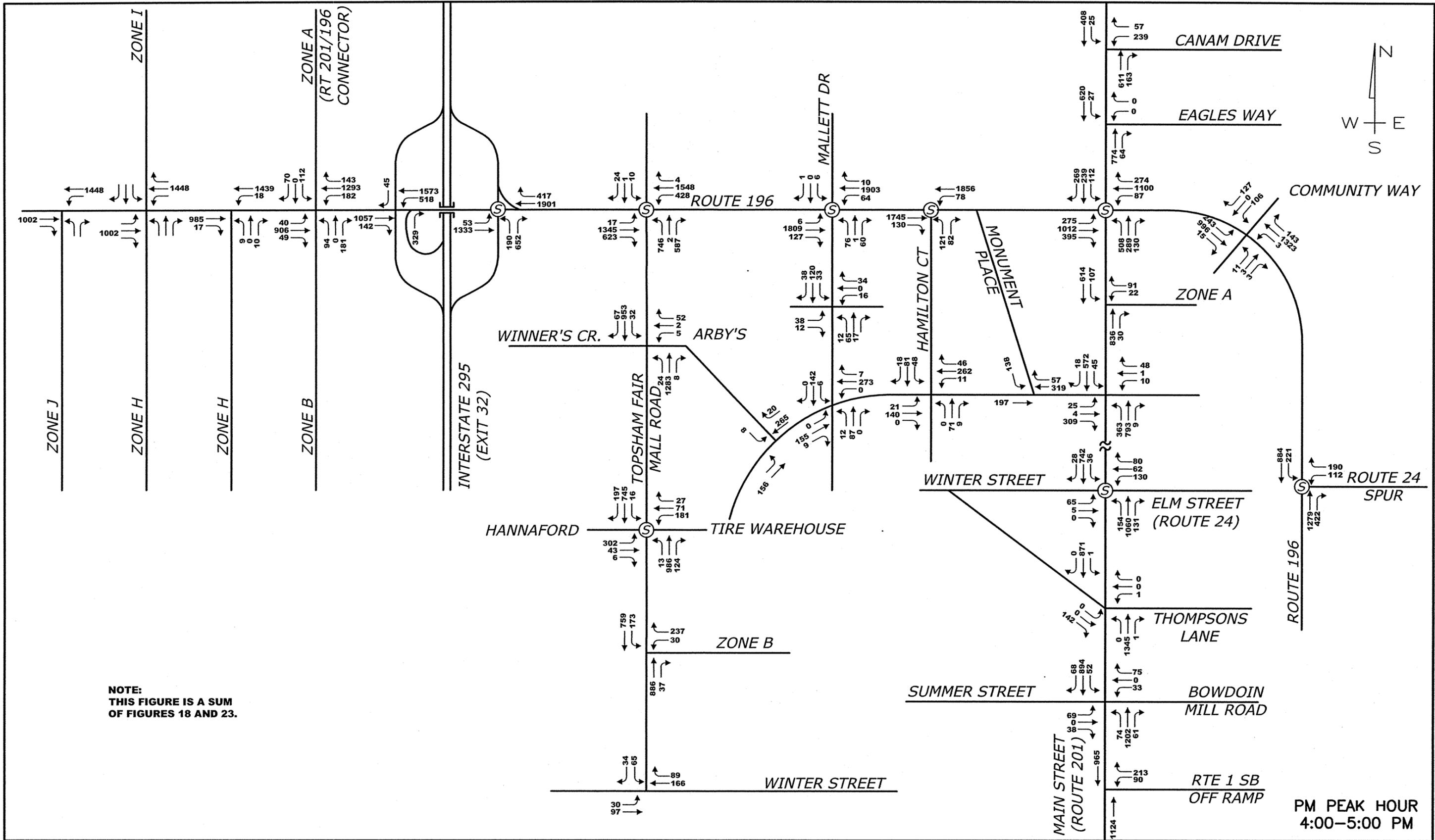
Rev.	Date	Revision

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
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File Name: 974-TRAF.DWG	

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Drawing Name: 2009 With Short Term Improvements  
 Trip Reassignment  
 Project: TOPSHAM TRANSPORTATION STUDY  
 TOPSHAM, MAINE

Figure No.  
**23**



Rev.	Date	Revision

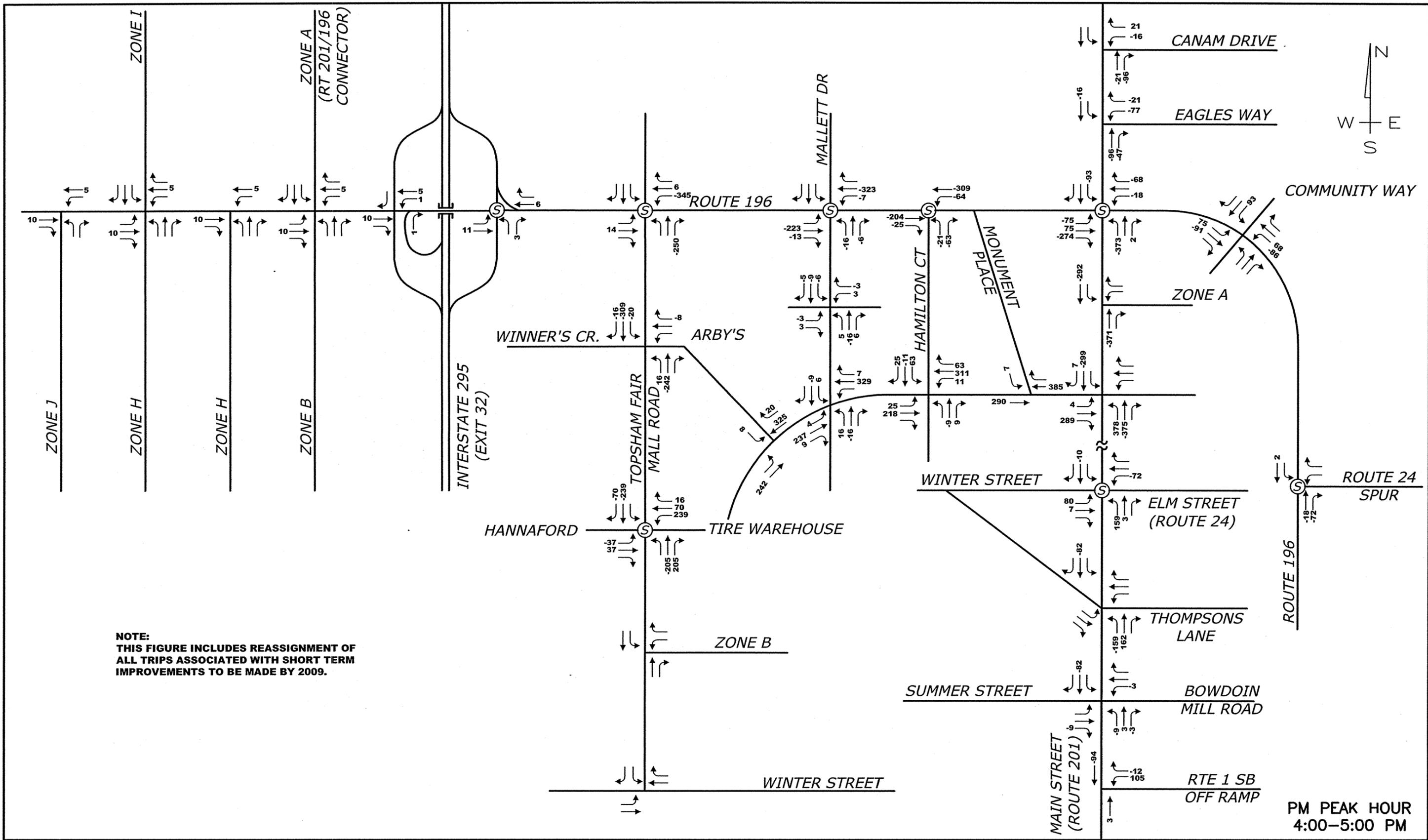
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Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

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Drawing Name:	2009 With Short Term Improvements Design Volumes
Project:	TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE

Figure No.	24
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Rev.	Date	Revision

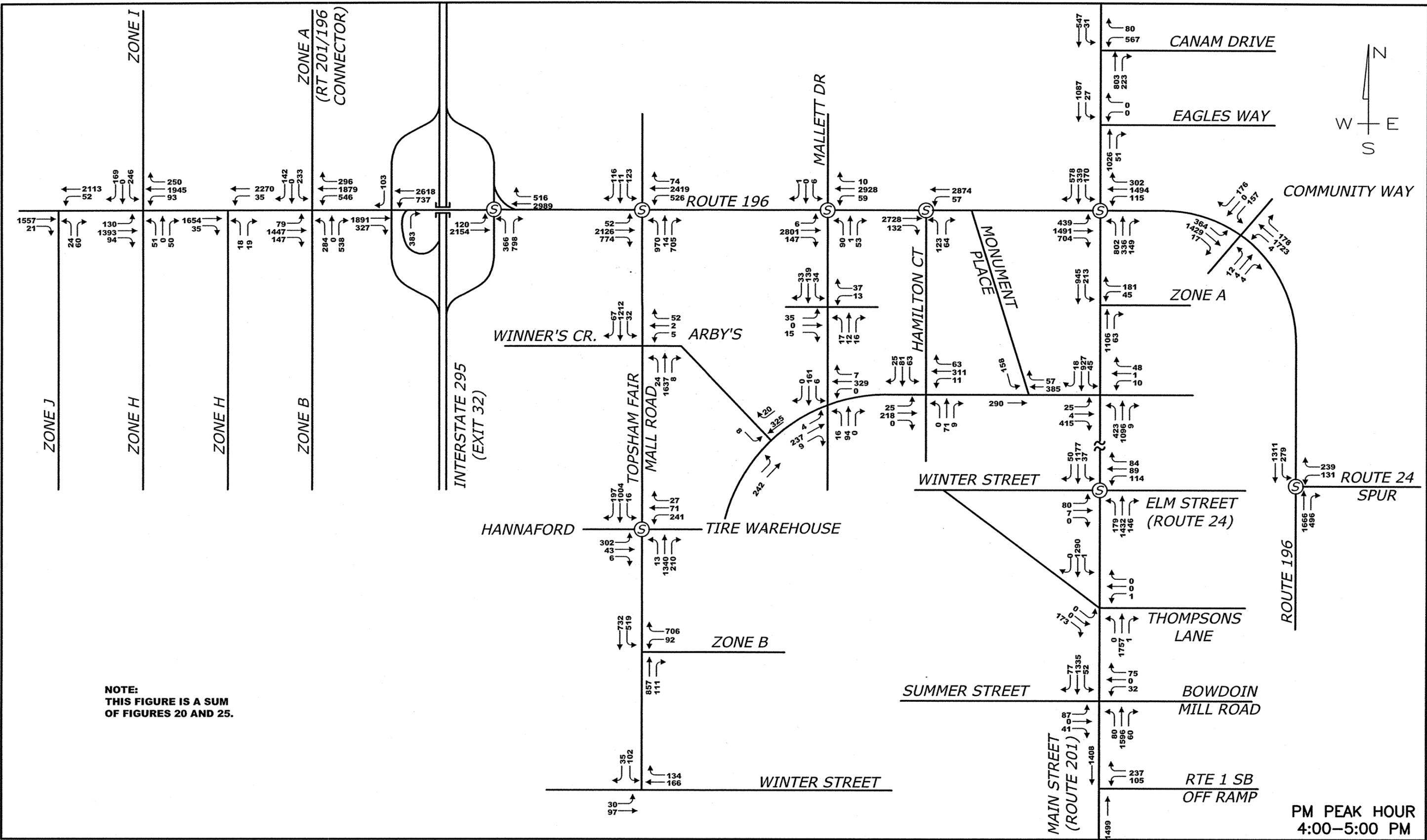
Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

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 207-657-6910  
 FAX: 207-657-6912  
 E-Mail: mailbox@gorrillpalmer.com

Drawing Name:	2024 With Short Term Improvements Trip Reassignment
Project:	TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE

Figure No.	25
------------	----



Rev.	Date	Revision
-	-	-

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

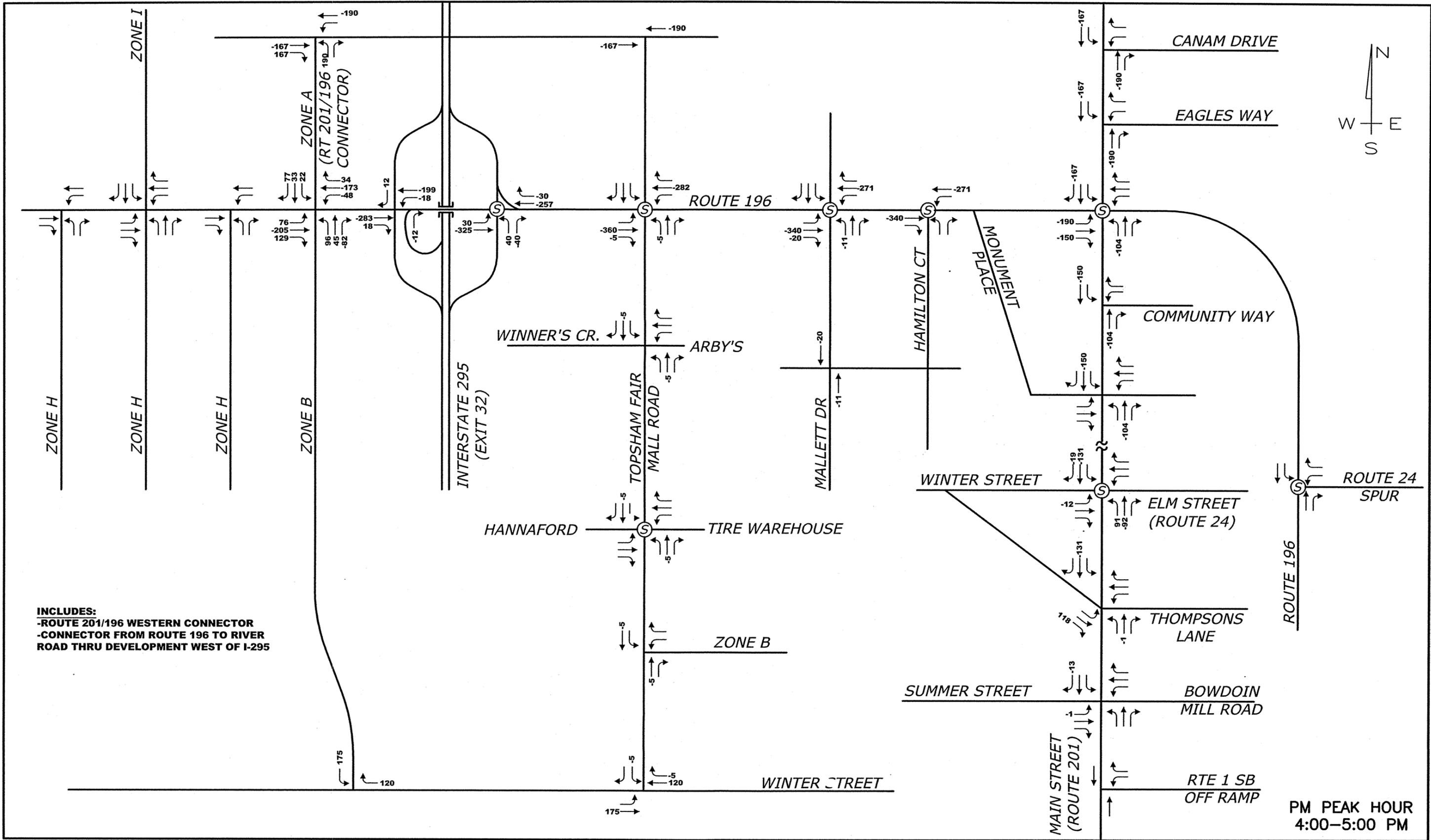
**GP** Gorrill-Palmer Consulting Engineers, Inc.  
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 15 Shaker Road  
 Gray, ME 04039

207-657-6910  
 FAX: 207-657-6912  
 E-Mail: mailbox@gorrillpalmer.com

Drawing Name:	2024 With Short Term Improvements Design Volumes
Project:	TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE

Figure No.	26
------------	----



**INCLUDES:**  
 -ROUTE 201/196 WESTERN CONNECTOR  
 -CONNECTOR FROM ROUTE 196 TO RIVER ROAD THRU DEVELOPMENT WEST OF I-295

PM PEAK HOUR  
 4:00-5:00 PM

Rev.	Date	Revision

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

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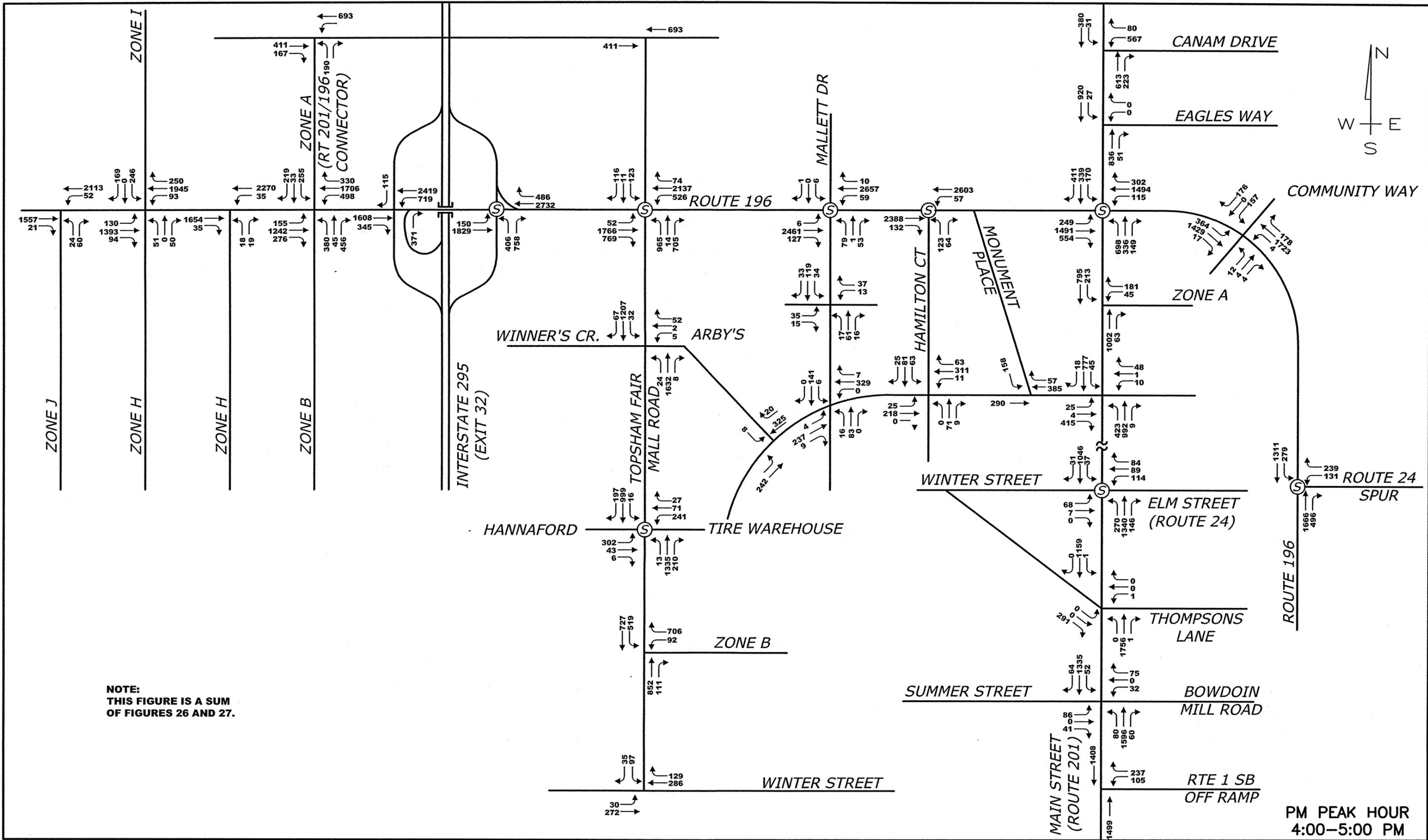
PO Box 1237  
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207-657-6910  
 FAX: 207-657-6912  
 E-Mail: mailbox@gorrillpalmer.com

Drawing Name: **2024 Phase 1A - Trip Reassignment**

Project: **TOPSHAM TRANSPORTATION STUDY  
 TOPSHAM, MAINE**

Figure No.  
**27**



Rev.	Date	Revision
-	-	-

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

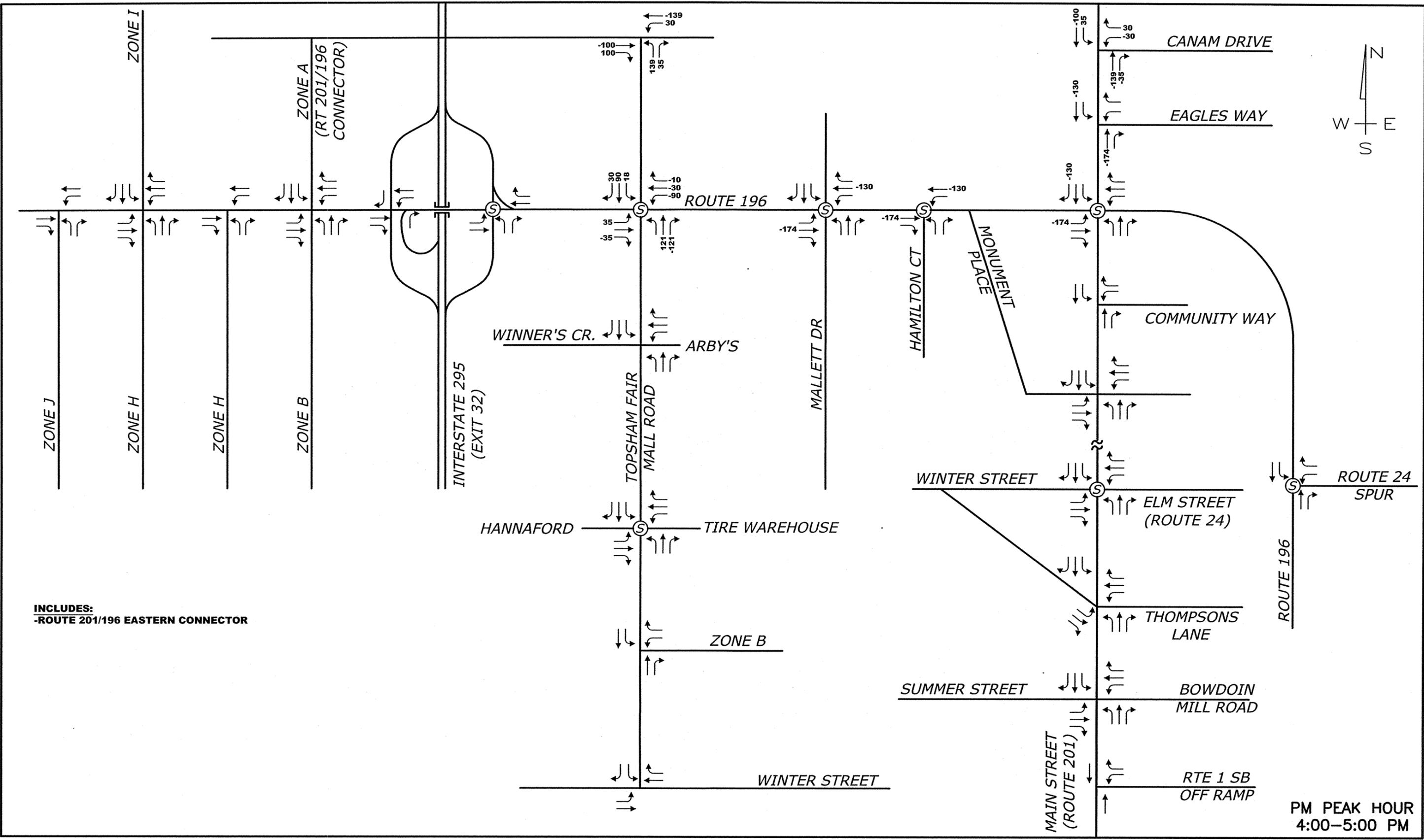
**GP** Gorrill-Palmer Consulting Engineers, Inc.  
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 15 Shaker Road  
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 FAX: 207-657-6912  
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Drawing Name:	2024 Phase 1A Design Volumes
Project:	TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE

Figure No.  
**28**



Rev.	Date	Revision
-	-	-

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

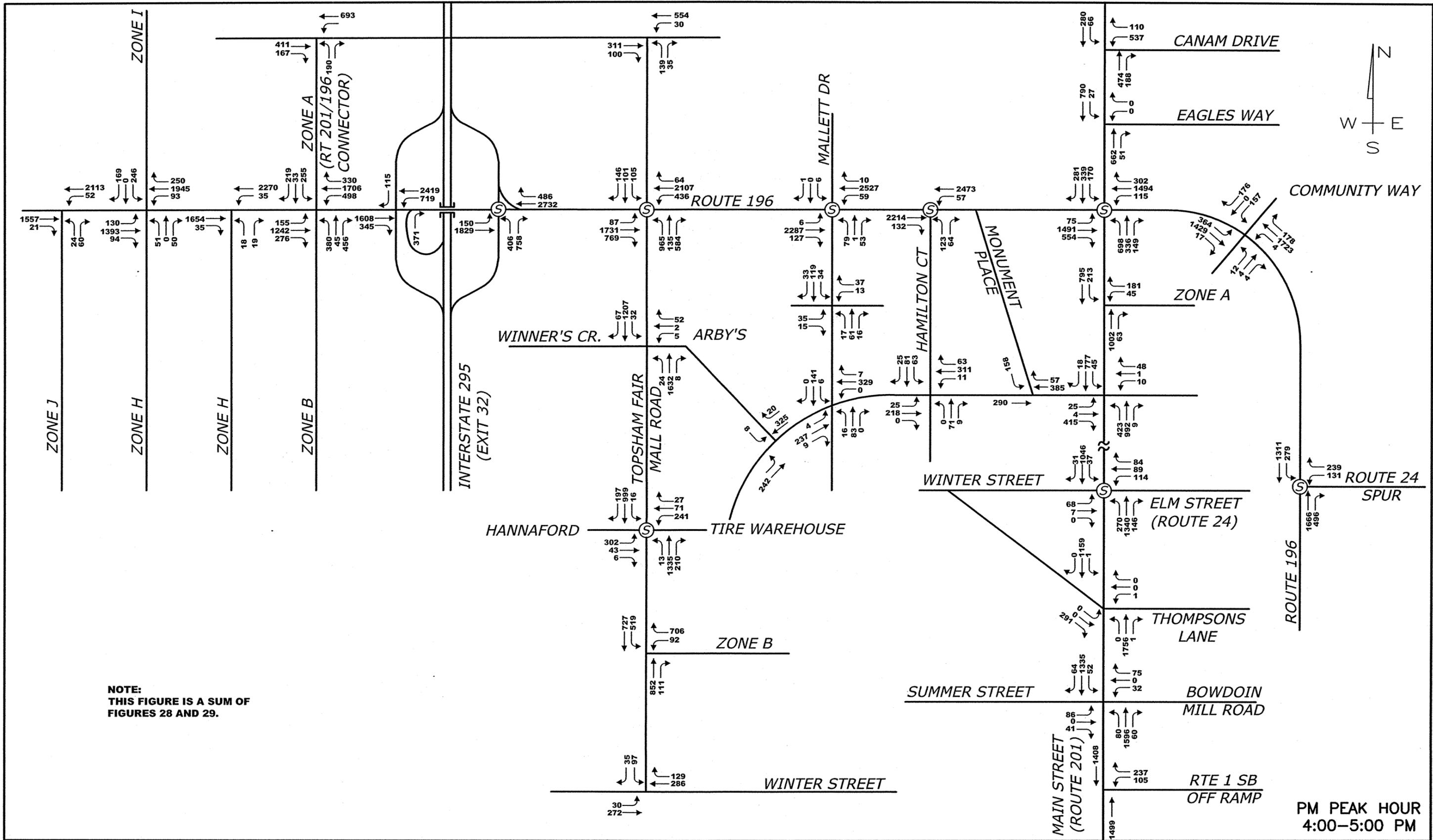
**GP** Gorrill-Palmer Consulting Engineers, Inc.  
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Drawing Name:	<b>2024 Phase 1B - Trip Reassignment</b>
Project:	<b>TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE</b>

Figure No.	<b>29</b>
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**NOTE:**  
THIS FIGURE IS A SUM OF  
FIGURES 28 AND 29.

PM PEAK HOUR  
4:00-5:00 PM

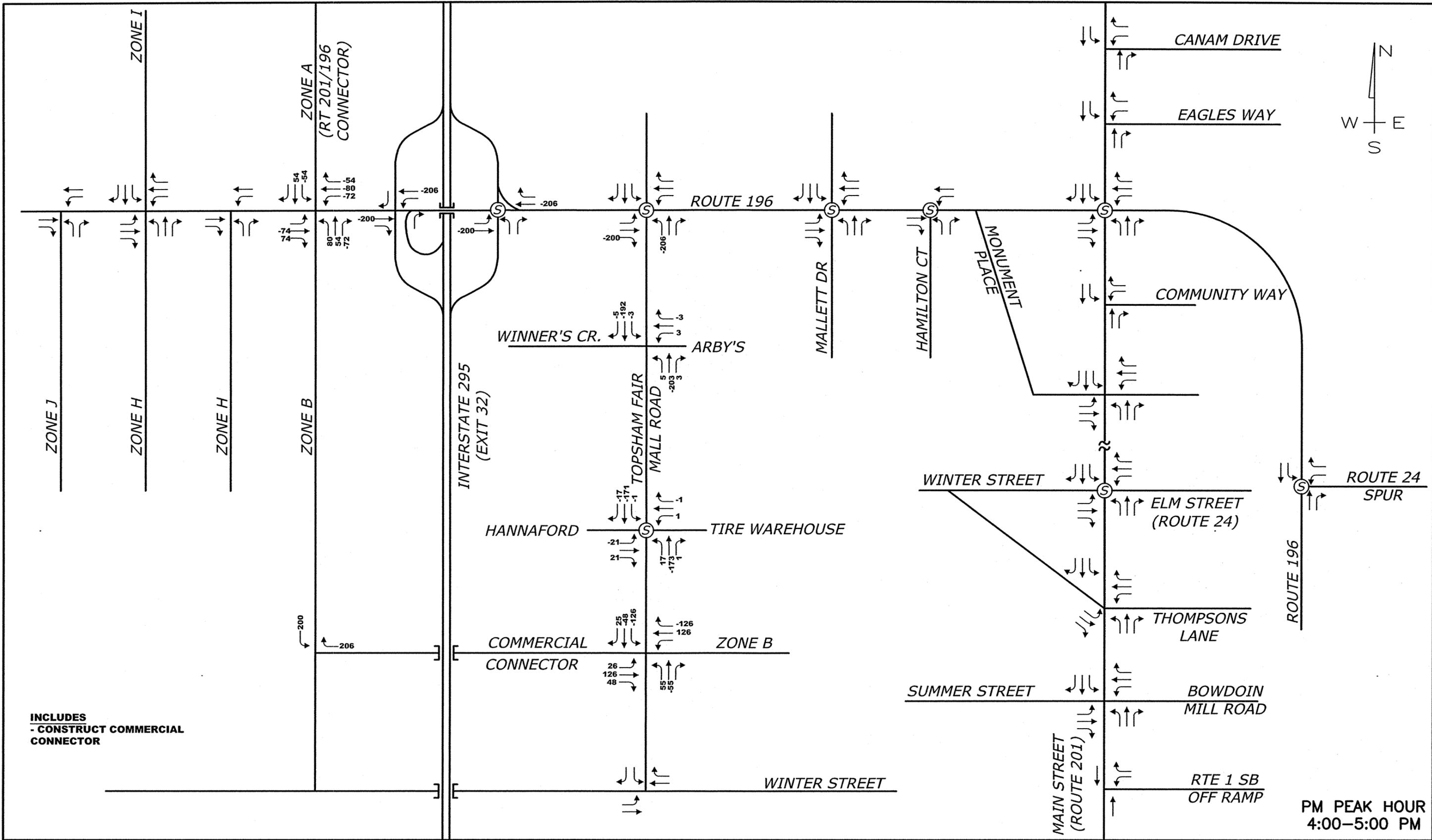
Rev.	Date	Revision

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
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File Name: 974-TRAF.DWG	

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 207-657-6910  
 FAX: 207-657-6912  
 E-Mail: mailbox@gorrillpalmer.com

Drawing Name: **2024 Phase 1B and 2A Design Volumes**  
 Project: **TOPSHAM TRANSPORTATION STUDY  
 TOPSHAM, MAINE**

Figure No.  
**30**



Rev.	Date	Revision

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

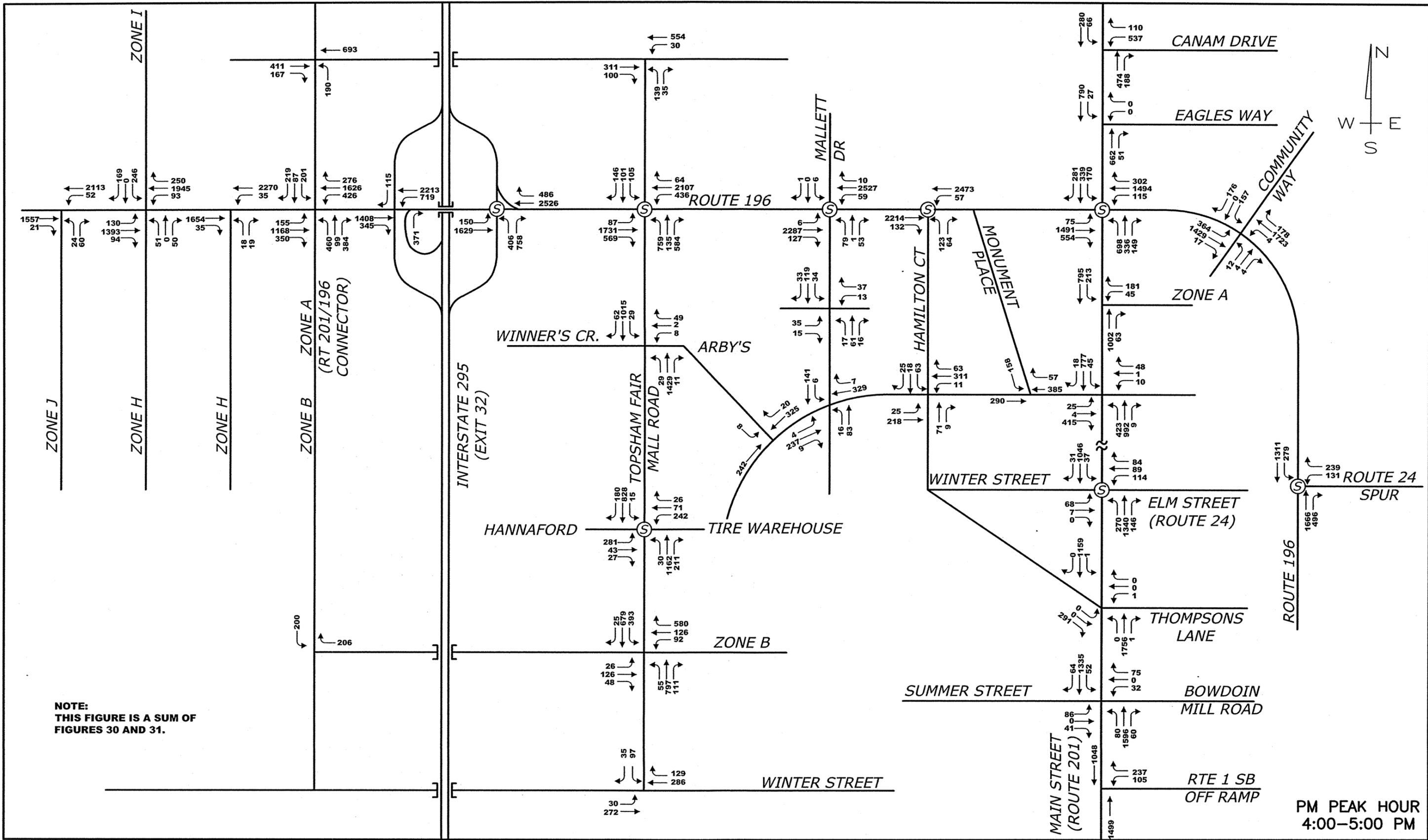
**GP** Gorrill-Palmer Consulting Engineers, Inc.  
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 FAX: 207-657-6912  
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Drawing Name:	2024 Phase 2B Trip Reassignment
Project:	TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE

Figure No.	31
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Rev.	Date	Revision

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

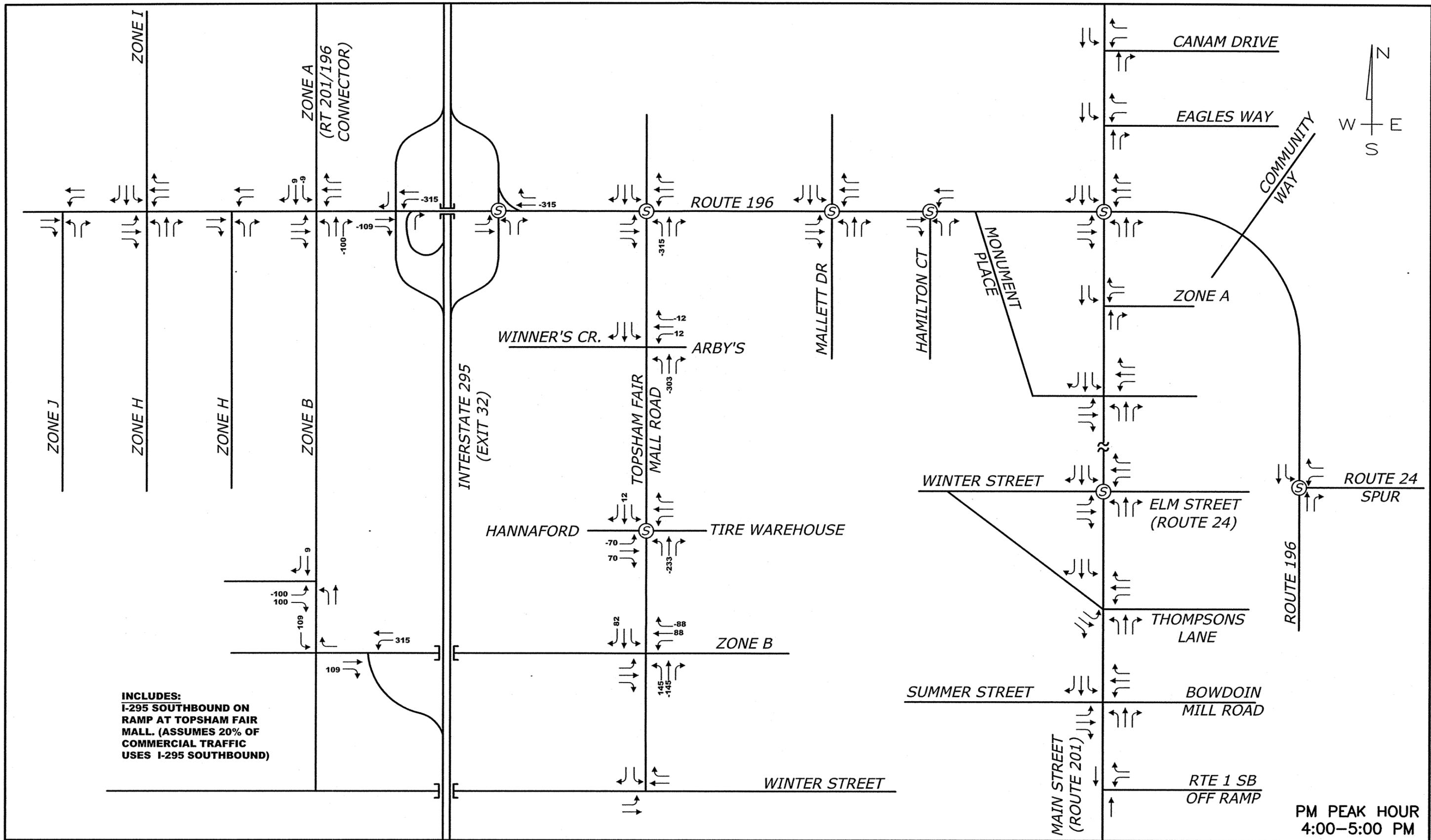
**GP** Gorrill-Palmer Consulting Engineers, Inc.  
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 Gray, ME 04039

207-657-6910  
 FAX: 207-657-6912  
 E-Mail: mailbox@gorrillpalmer.com

Drawing Name:	2024 Phase 2B Design Volumes
Project:	TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE

Figure No.	32
------------	----



Rev.	Date	Revision
-	-	-

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

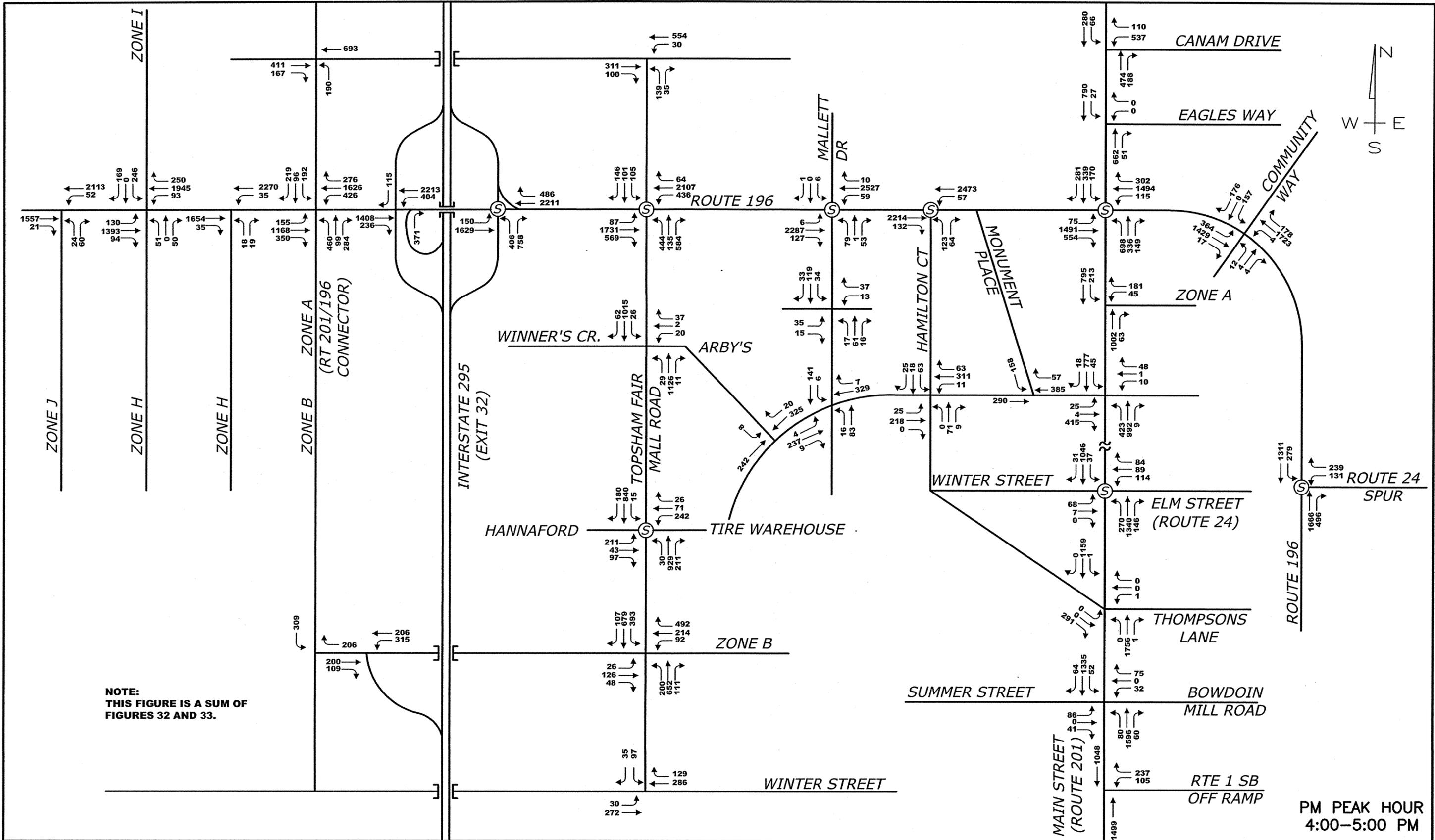
**GP** Gorrill-Palmer Consulting Engineers, Inc.  
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PO Box 1237  
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 207-657-6910  
 FAX: 207-657-6912  
 E-Mail: mailbox@gorrillpalmer.com

Drawing Name: **2024 Phase 3A Trip Reassignment**

Project: **TOPSHAM TRANSPORTATION STUDY  
 TOPSHAM, MAINE**

Figure No.  
**33**



Rev.	Date	Revision
-	-	-

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

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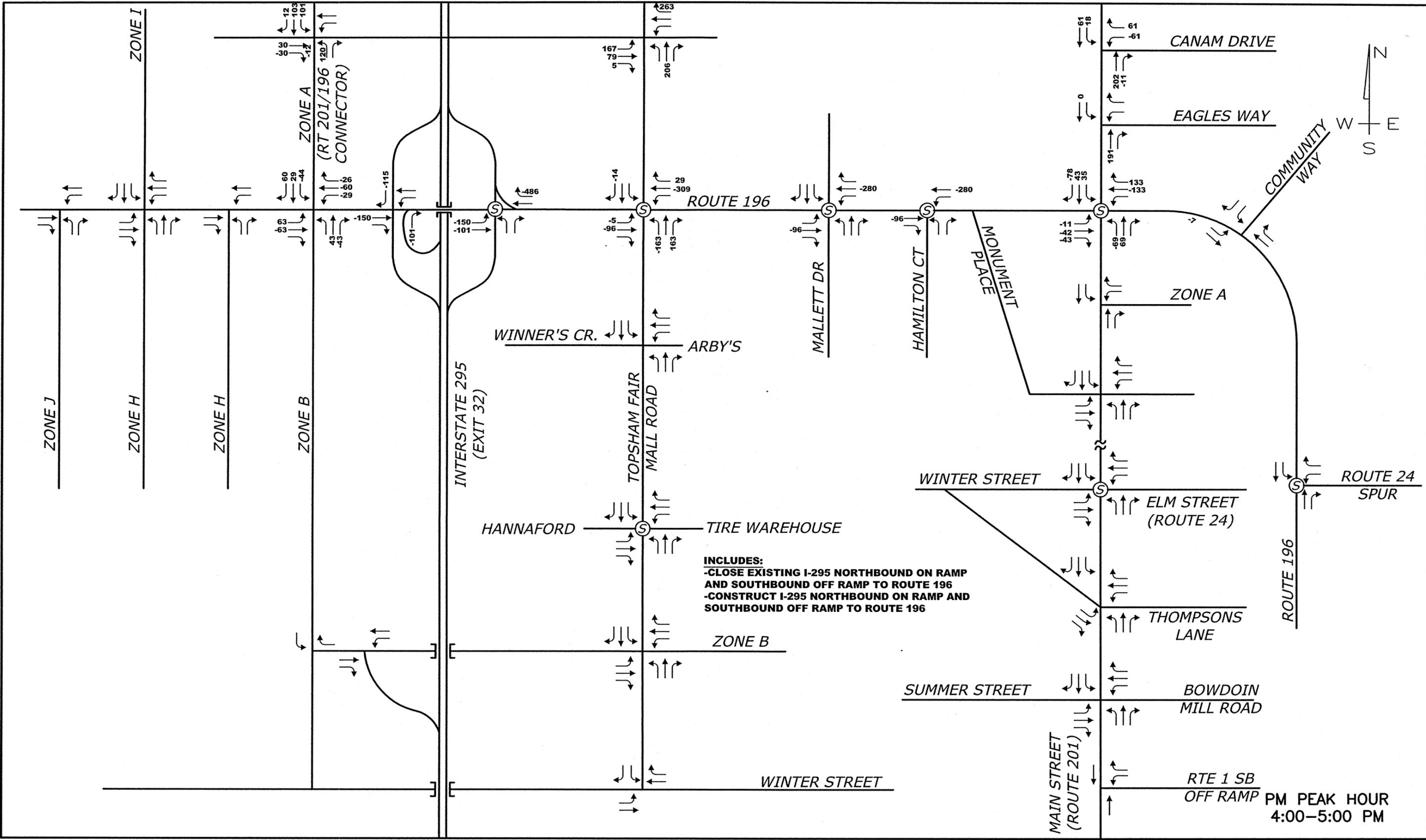
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 FAX: 207-657-6912  
 E-Mail: mailbox@gorrillpalmer.com

Drawing Name: **2024 Phase 3A Design Volumes**

Project: **TOPSHAM TRANSPORTATION STUDY  
 TOPSHAM, MAINE**

Figure No.  
**34**



Rev.	Date	Revision

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

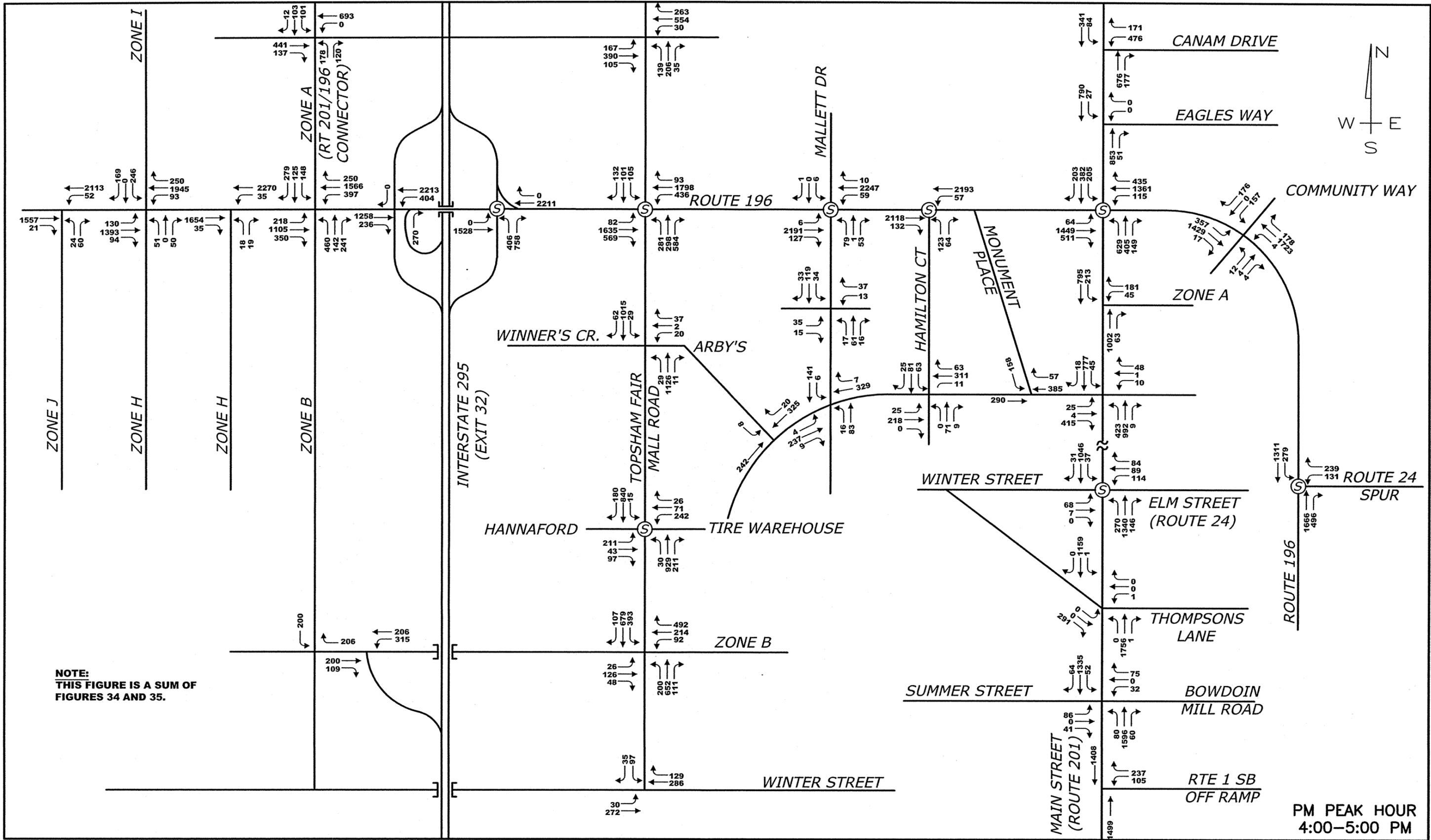
**GP** Gorrill-Palmer Consulting Engineers, Inc.  
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 207-657-6910  
 FAX: 207-657-6912  
 E-Mail: mailbox@gorrillpalmer.com

Drawing Name: **2024 Phase 3B Trip Reassignment**

Project: **TOPSHAM TRANSPORTATION STUDY  
 TOPSHAM, MAINE**

Figure No.  
**35**



Rev.	Date	Revision

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

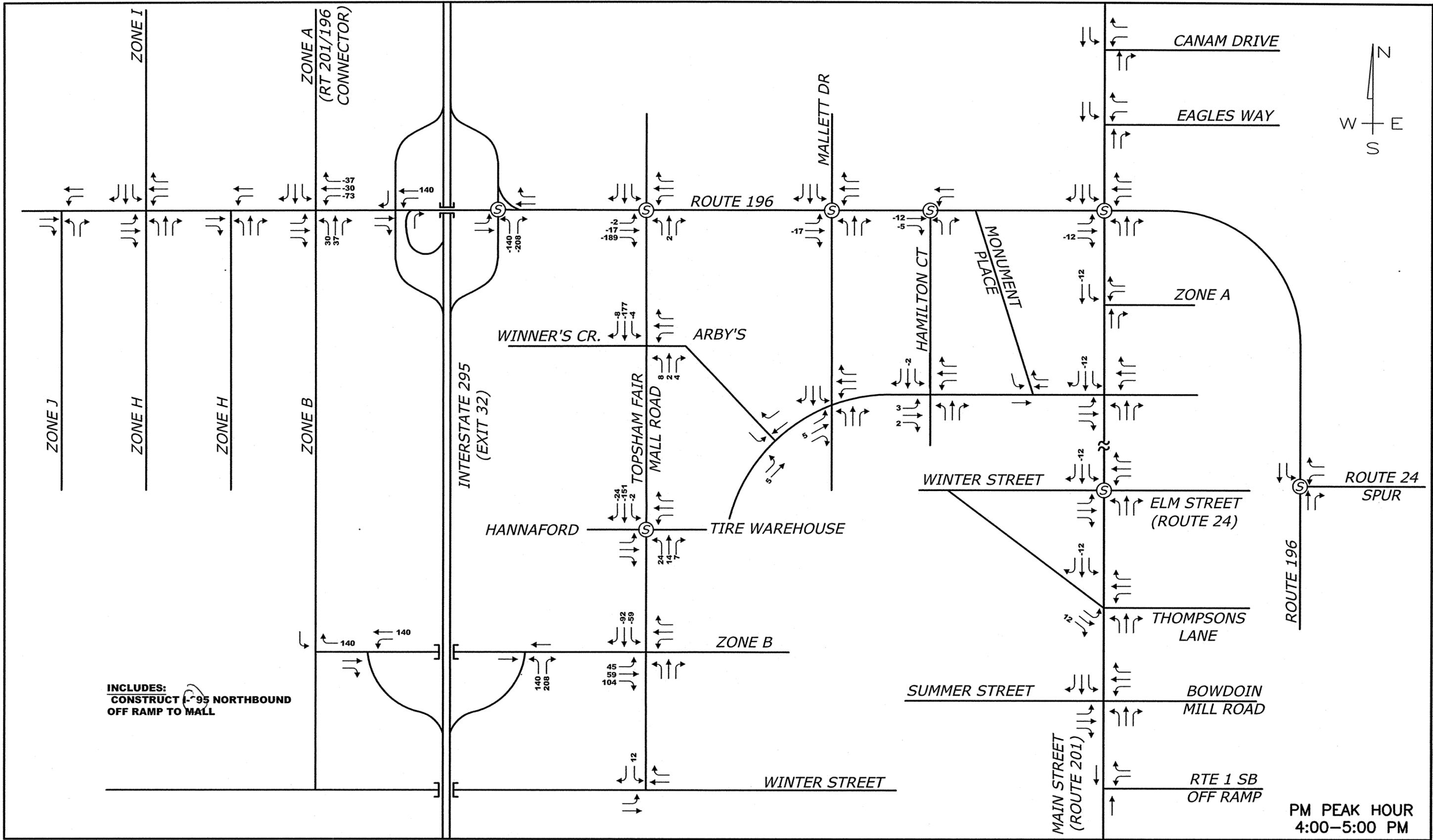
**GP** Gorrill-Palmer Consulting Engineers, Inc.  
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Drawing Name:	2024 Phase 3B Design Volumes
Project:	TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE

Figure No.	36
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**INCLUDES:**  
 CONSTRUCT I-95 NORTHBOUND  
 OFF RAMP TO MALL

PM PEAK HOUR  
 4:00-5:00 PM

Rev.	Date	Revision

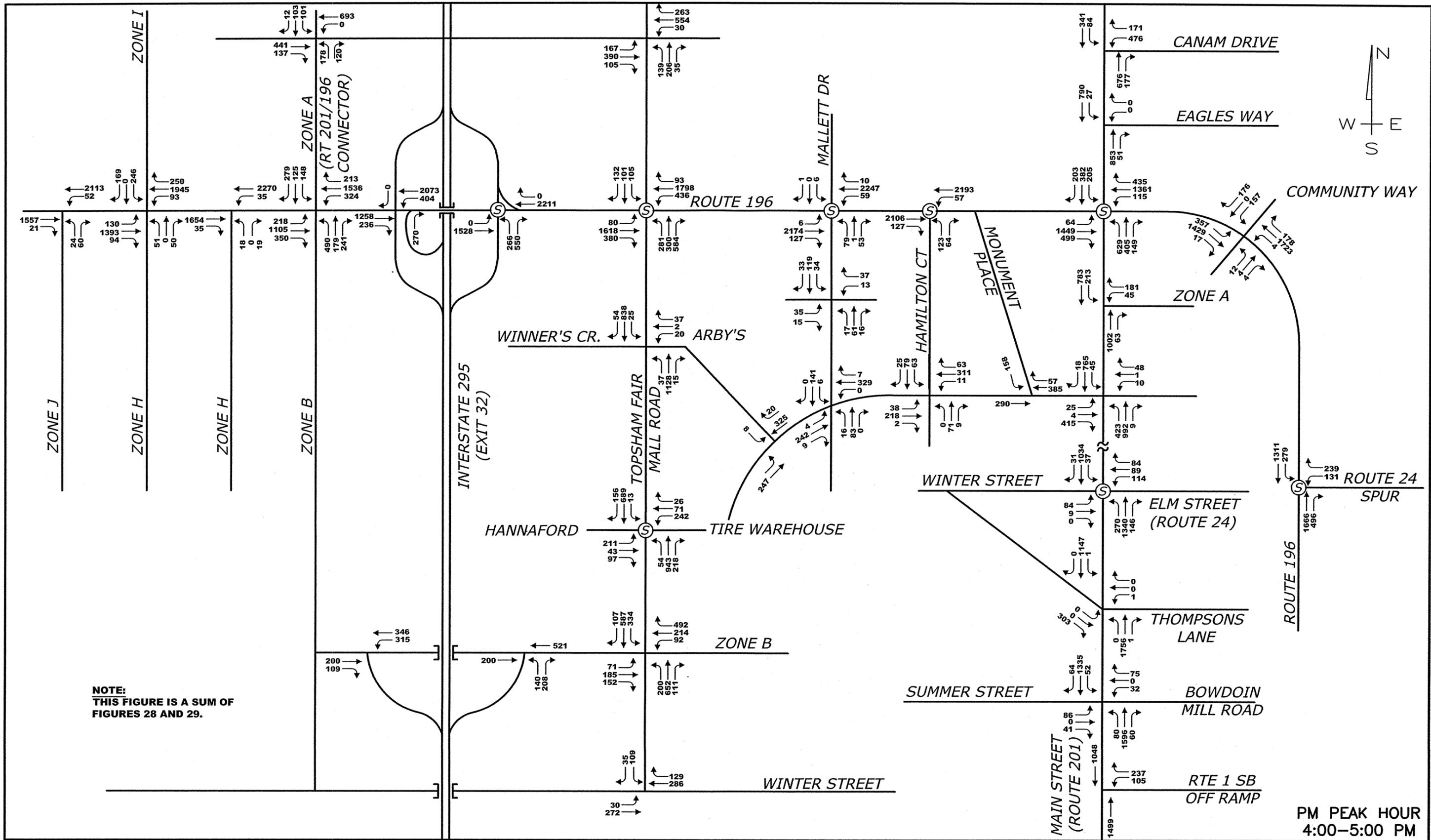
Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

**GP** Gorrill-Palmer Consulting Engineers, Inc.  
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 207-657-6910  
 FAX: 207-657-6912  
 E-Mail: mailbox@gorrillpalmer.com

Drawing Name:	2024 Phase 3C Trip Reassignment
Project:	TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE

Figure No.	37
------------	----



Rev.	Date	Revision

Design: RLB	Date: AUG 2004
Draft: DB	Job No.: 974
Checked: PAH	Scale: NONE
File Name: 974-TRAF.DWG	

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 Gray, ME 04039

207-657-6910  
 FAX: 207-657-6912  
 E-Mail: mailbox@gorrillpalmer.com

Drawing Name:	2024 Phase 3C Design Volumes
Project:	TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE

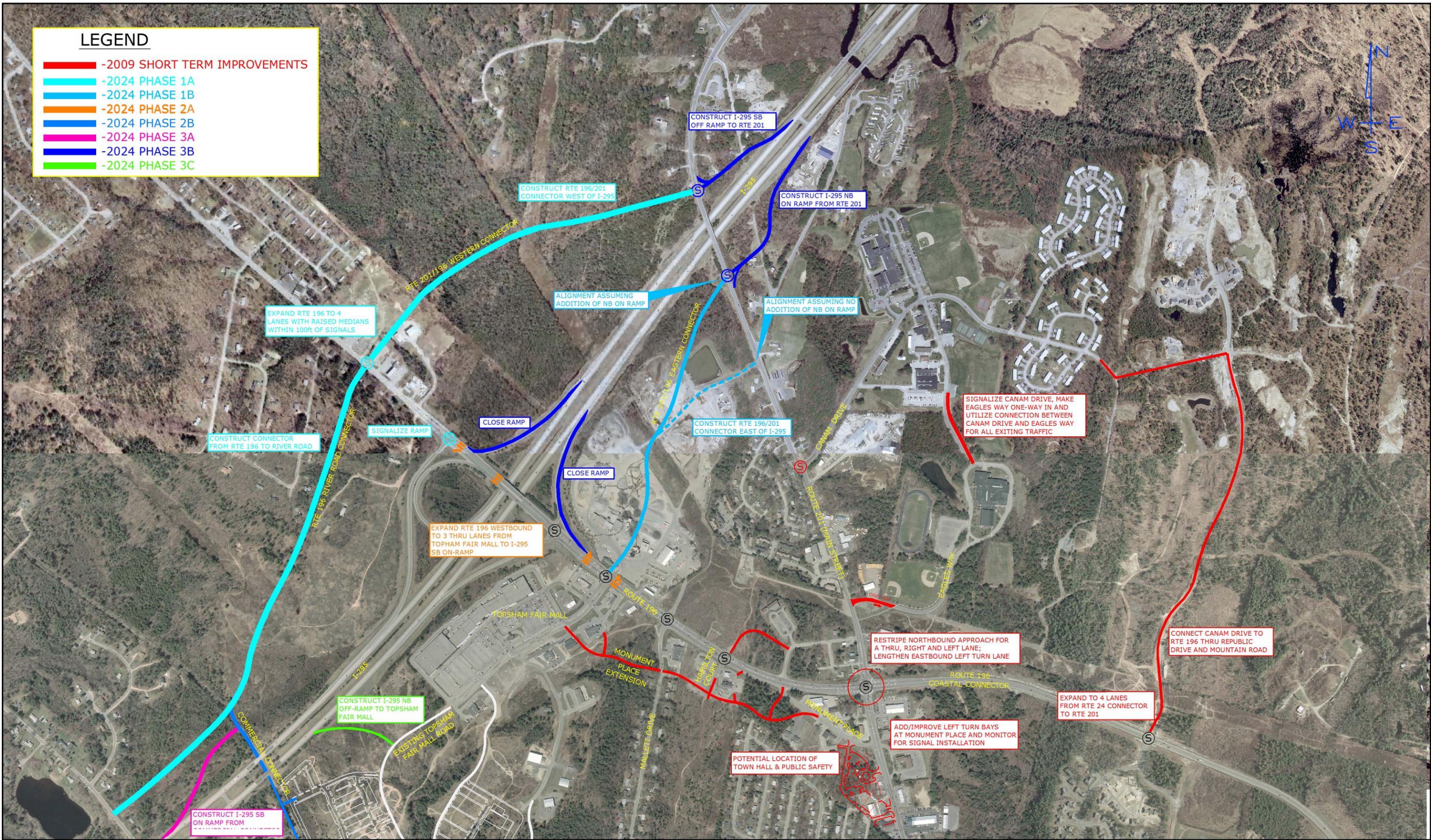
Figure No.	38
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# *Appendix 3*

Overall Improvement Alternatives Considered – North.....	3.1
Overall Improvement Alternatives Considered – South.....	3.2
2009 Short Term Improvements – North.....	3.3
2009 Short Term Improvements – South.....	3.4
2024 – Phase 1A Improvements.....	3.5
2024 – Phase 1B Improvements.....	3.6
2024 – Phase 2A Improvements.....	3.7
2024 – Phase 2B Improvements.....	3.8
2024 – Phase 3A Improvements.....	3.9
2024 – Phase 3B Improvements.....	3.10
2024 – Phase 3C Improvements.....	3.11

**LEGEND**

- -2009 SHORT TERM IMPROVEMENTS
- -2024 PHASE 1A
- -2024 PHASE 1B
- -2024 PHASE 2A
- -2024 PHASE 2B
- -2024 PHASE 3A
- -2024 PHASE 3B
- -2024 PHASE 3C



Rev.	Date	Revision

Design: RLB	Date: MAY 2005
Draft: DB	Job No.: 974
Checked: PAH	Scale: 1"=750'±
File Name: 974-AERIAL-BASEMAP-CONCEPTS.DWG	

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Drawing Name: **OVERALL IMPROVEMENTS PLAN – NORTH**

Project: **TOPSHAM TRANSPORTATION STUDY  
 TOPSHAM, MAINE**

Figure No.  
**1**



Rev.	Date	Revision
-	-	-

Design:	RLB	Date:	DEC 2004
Draft:	JF	Job No.:	974
Checked:	PAH	Scale:	1"=500'±
File Name: 974-AERIAL-BASEMAP-CONCEPTS.DWG			



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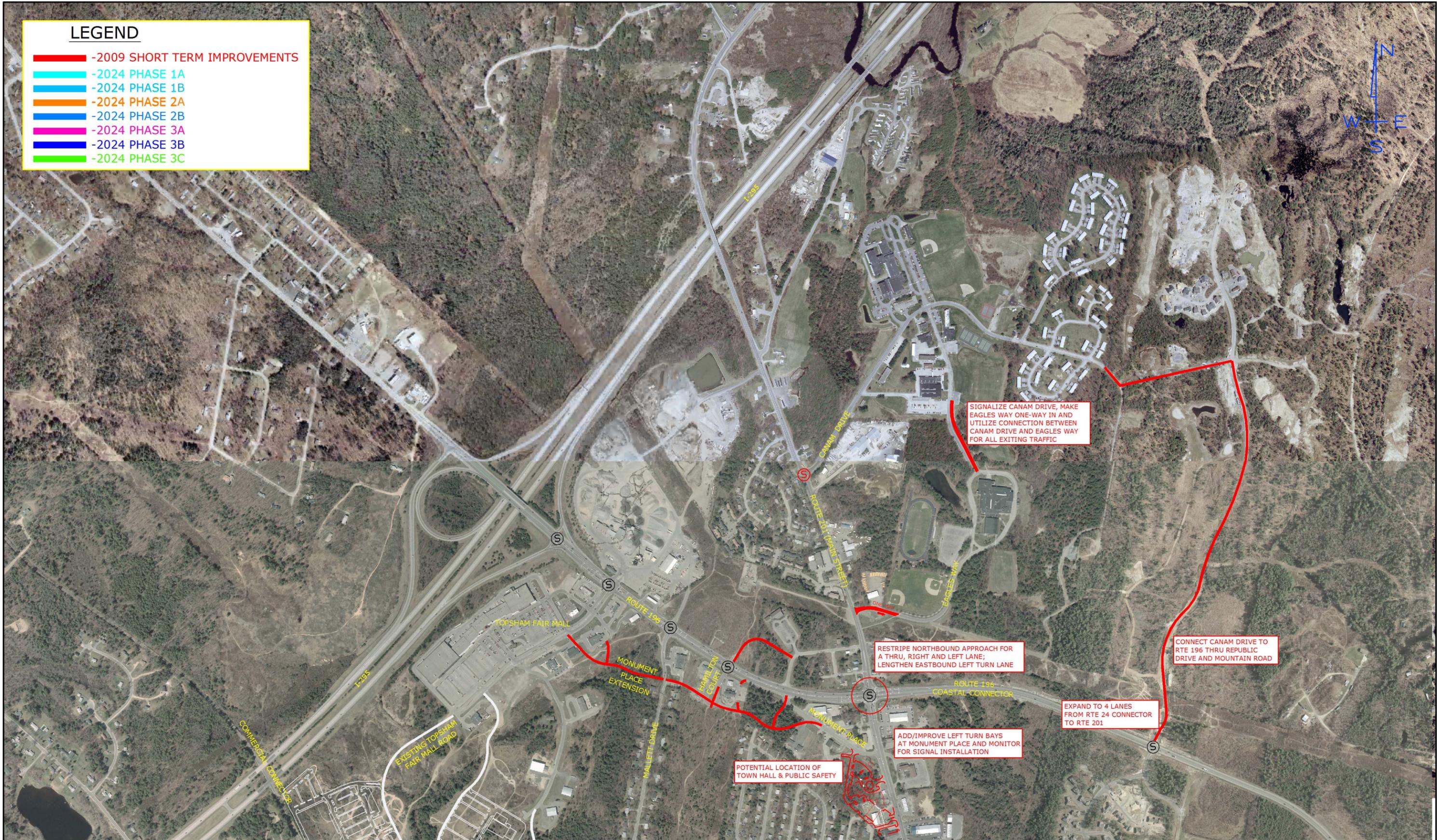
PO Box 1237  
15 Shaker Road  
Gray, ME 04039  
207-657-6910  
FAX: 207-657-6912  
E-Mail: mailbox@gorrillpalmer.com

Drawing Name:	<b>OVERALL IMPROVEMENTS PLAN – SOUTH</b>
Project:	TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE

Figure No.	<b>2</b>
------------	----------

**LEGEND**

- -2009 SHORT TERM IMPROVEMENTS
- -2024 PHASE 1A
- -2024 PHASE 1B
- -2024 PHASE 2A
- -2024 PHASE 2B
- -2024 PHASE 3A
- -2024 PHASE 3B
- -2024 PHASE 3C



SIGNALIZE CANAM DRIVE, MAKE EAGLES WAY ONE-WAY IN AND UTILIZE CONNECTION BETWEEN CANAM DRIVE AND EAGLES WAY FOR ALL EXITING TRAFFIC

RESTRIPE NORTHBOUND APPROACH FOR A THRU, RIGHT AND LEFT LANE; LENGTHEN EASTBOUND LEFT TURN LANE

CONNECT CANAM DRIVE TO RTE 196 THRU REPUBLIC DRIVE AND MOUNTAIN ROAD

EXPAND TO 4 LANES FROM RTE 24 CONNECTOR TO RTE 201

ADD/IMPROVE LEFT TURN BAYS AT MONUMENT PLACE AND MONITOR FOR SIGNAL INSTALLATION

POTENTIAL LOCATION OF TOWN HALL & PUBLIC SAFETY

Rev.	Date	Revision

Design:	RLB	Date:	DEC 2004
Draft:	JF	Job No.:	974
Checked:	PAH	Scale:	1"=750'±
File Name: 974-AERIAL-BASEMAP-CONCEPTS.DWG			

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 Traffic and Civil Engineering Services

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 E-Mail: mailbox@gorrillpalmer.com

Drawing Name: **2009 - SHORT TERM IMPROVEMENTS - NORTH**

Project: **TOPSHAM TRANSPORTATION STUDY  
 TOPSHAM, MAINE**



Rev.	Date	Revision
-	-	-

Design:	RLB	Date:	DEC 2004
Draft:	JF	Job No.:	974
Checked:	PAH	Scale:	1"=500'±
File Name:		974-AERIAL-BASEMAP-CONCEPTS.DWG	

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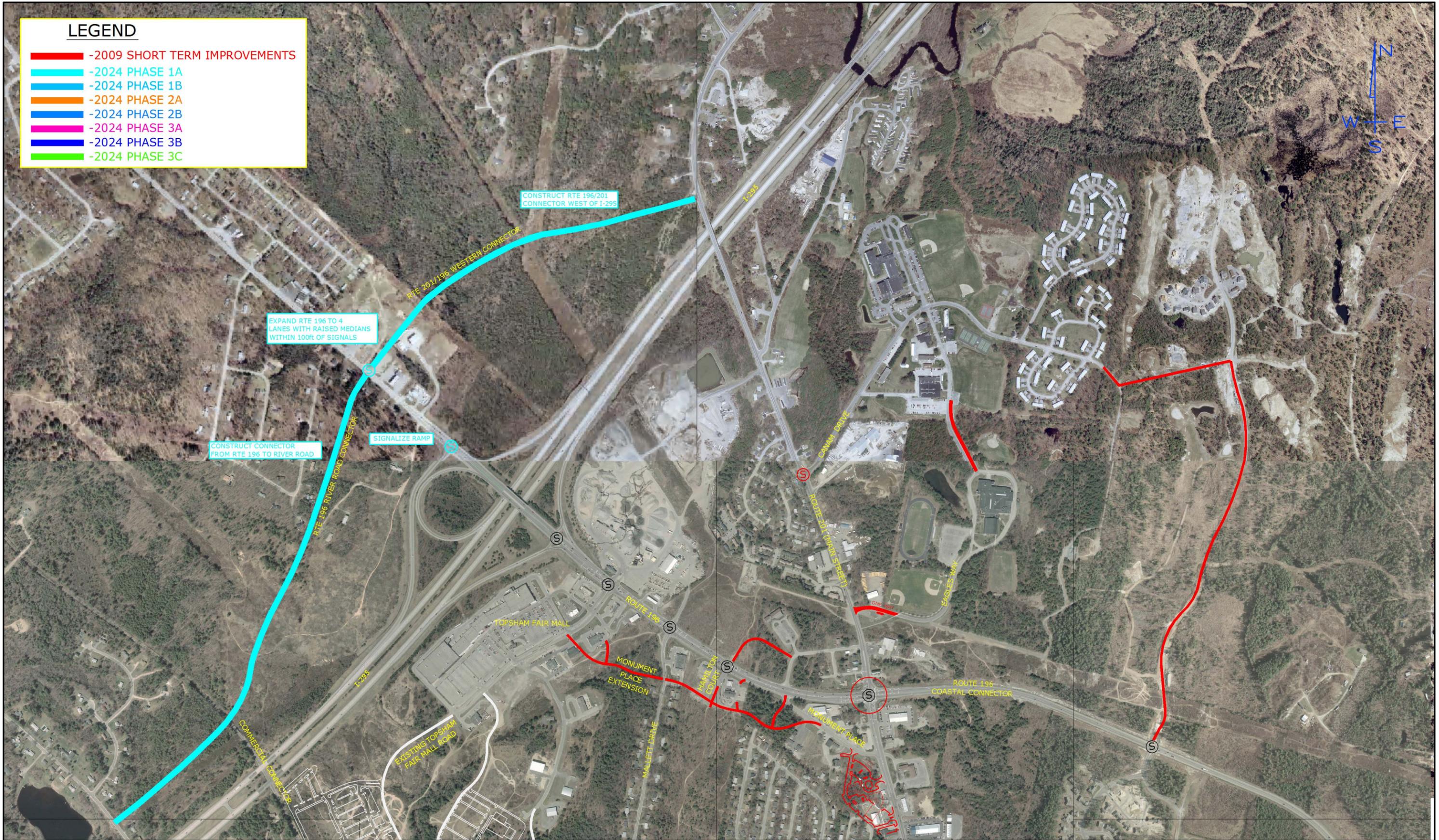
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Drawing Name: **2009 - SHORT TERM IMPROVEMENTS - SOUTH**

Project: **TOPSHAM TRANSPORTATION STUDY  
TOPSHAM, MAINE**

**LEGEND**

- -2009 SHORT TERM IMPROVEMENTS
- -2024 PHASE 1A
- -2024 PHASE 1B
- -2024 PHASE 2A
- -2024 PHASE 2B
- -2024 PHASE 3A
- -2024 PHASE 3B
- -2024 PHASE 3C



Rev.	Date	Revision
-	-	-

Design:	RLB	Date:	DEC 2004
Draft:	JF	Job No.:	974
Checked:	PAH	Scale:	1"=750'±
File Name: 974-AERIAL-BASEMAP-CONCEPTS.DWG			

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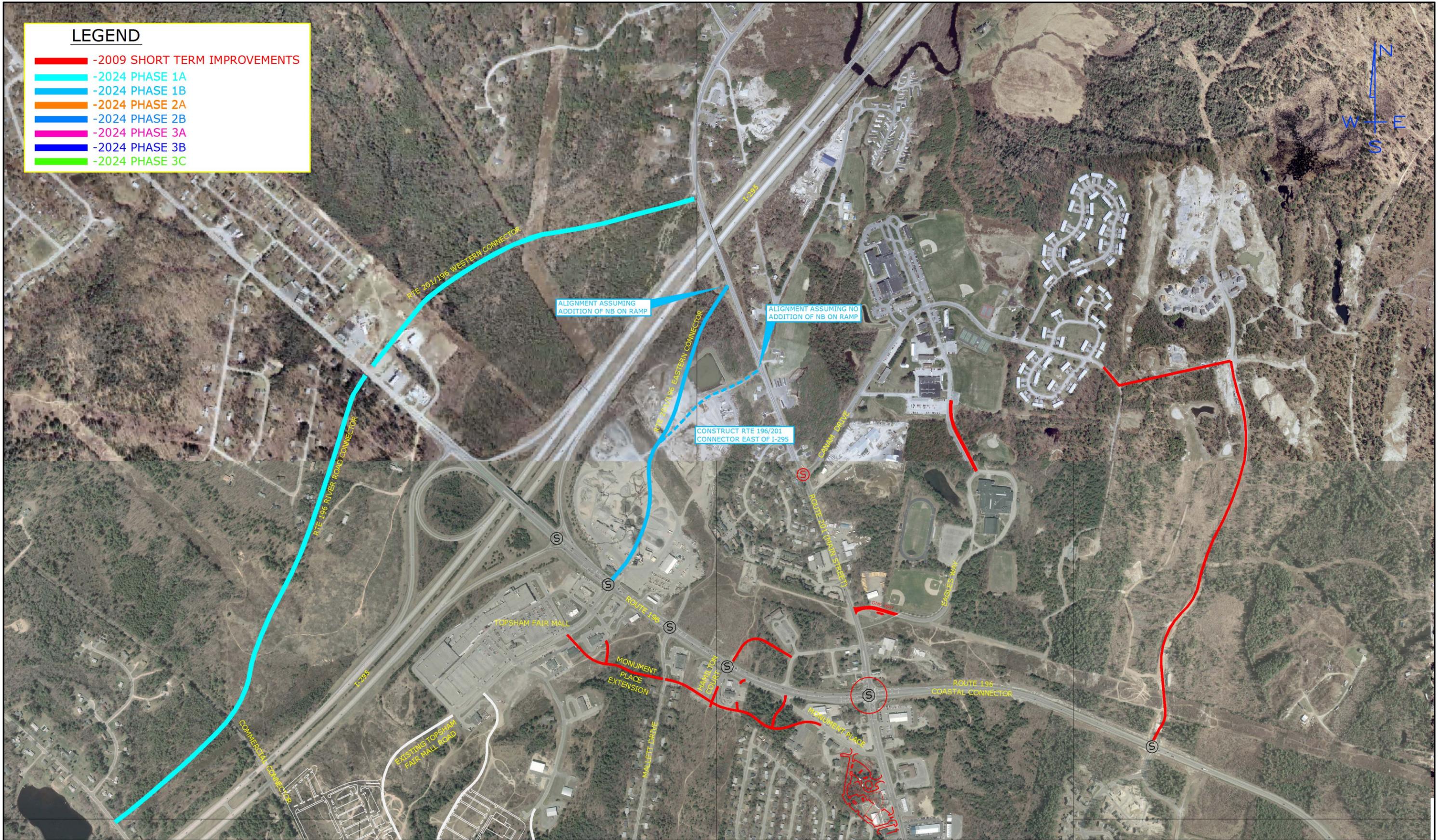
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Drawing Name:	<b>2024 - PHASE 1A IMPROVEMENTS</b>
Project:	TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE

Figure No.  
**5**

**LEGEND**

- -2009 SHORT TERM IMPROVEMENTS
- -2024 PHASE 1A
- -2024 PHASE 1B
- -2024 PHASE 2A
- -2024 PHASE 2B
- -2024 PHASE 3A
- -2024 PHASE 3B
- -2024 PHASE 3C



Rev.	Date	Revision
-	-	-

Design:	RLB	Date:	DEC 2004
Draft:	JF	Job No.:	974
Checked:	PAH	Scale:	1"=750'±
File Name: 974-AERIAL-BASEMAP-CONCEPTS.DWG			

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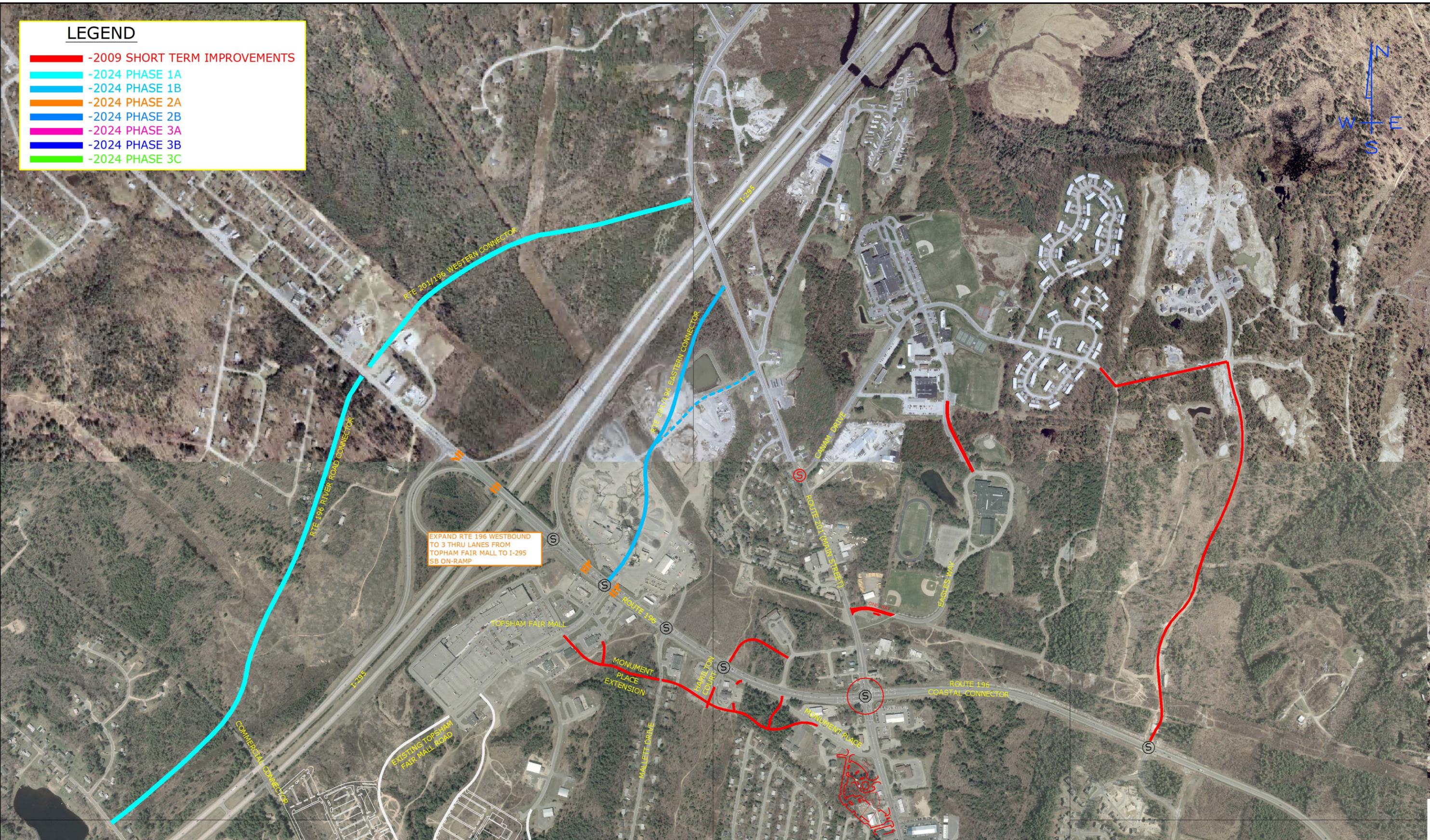
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Drawing Name:	<b>2024 - PHASE 1B IMPROVEMENTS</b>
Project:	TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE

Figure No.  
**6**

**LEGEND**

- -2009 SHORT TERM IMPROVEMENTS
- -2024 PHASE 1A
- -2024 PHASE 1B
- -2024 PHASE 2A
- -2024 PHASE 2B
- -2024 PHASE 3A
- -2024 PHASE 3B
- -2024 PHASE 3C



Rev.	Date	Revision

Design:	RLB	Date:	DEC 2004
Draft:	JF	Job No.:	974
Checked:	PAH	Scale:	1"=750'±
File Name: 974-AERIAL-BASEMAP-CONCEPTS.DWG			

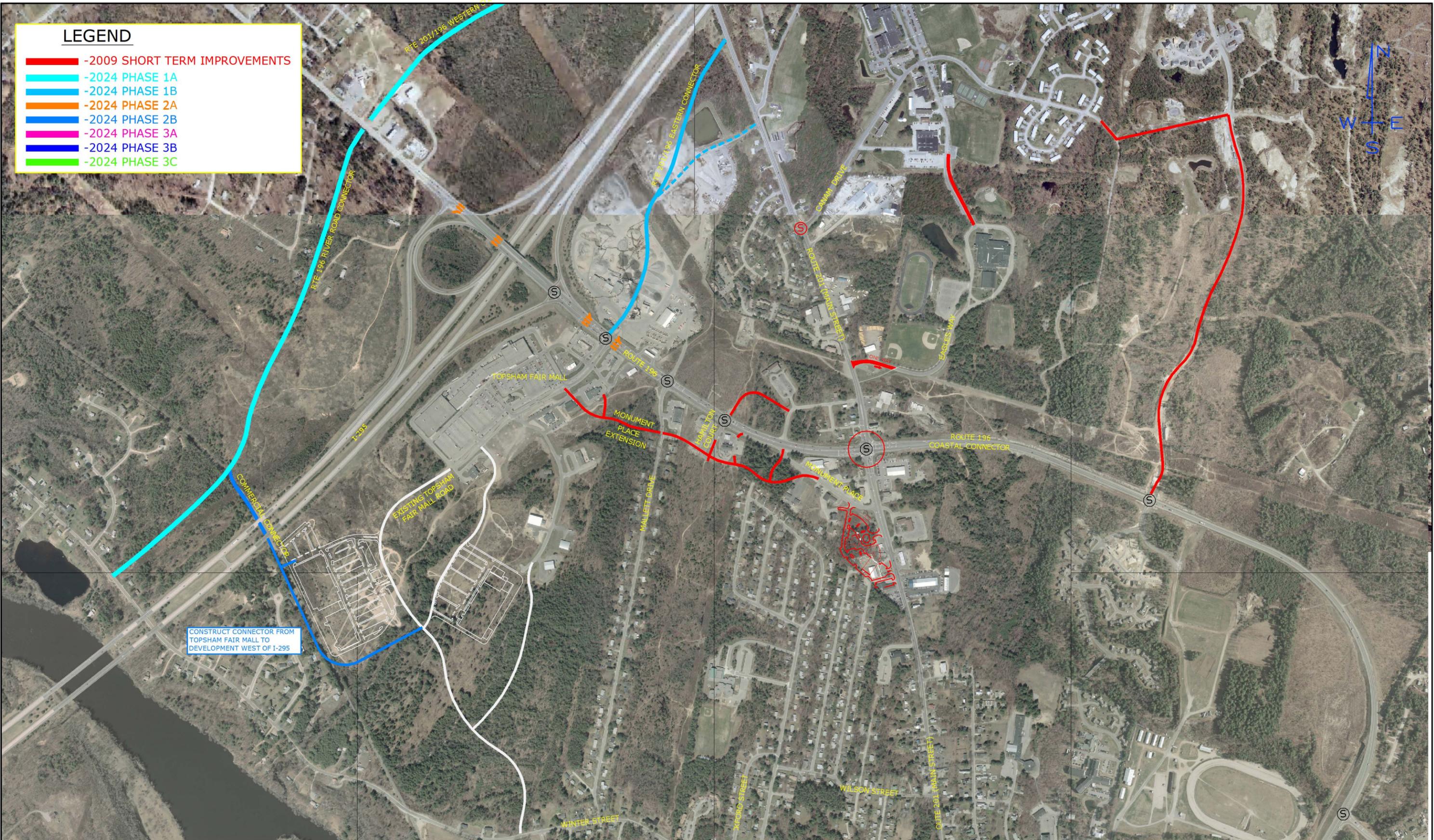
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Drawing Name: **2024 - PHASE 2A IMPROVEMENTS**

Project: **TOPSHAM TRANSPORTATION STUDY  
TOPSHAM, MAINE**

Figure No.  
**7**



**LEGEND**

- -2009 SHORT TERM IMPROVEMENTS
- -2024 PHASE 1A
- -2024 PHASE 1B
- -2024 PHASE 2A
- -2024 PHASE 2B
- -2024 PHASE 3A
- -2024 PHASE 3B
- -2024 PHASE 3C

CONSTRUCT CONNECTOR FROM TOPSHAM FAIR MALL TO DEVELOPMENT WEST OF I-295

Rev.	Date	Revision

Design:	RLB	Date:	DEC 2004
Draft:	JF	Job No.:	974
Checked:	PAH	Scale:	1"=740'±
File Name: 974-AERIAL-BASEMAP-CONCEPTS.DWG			

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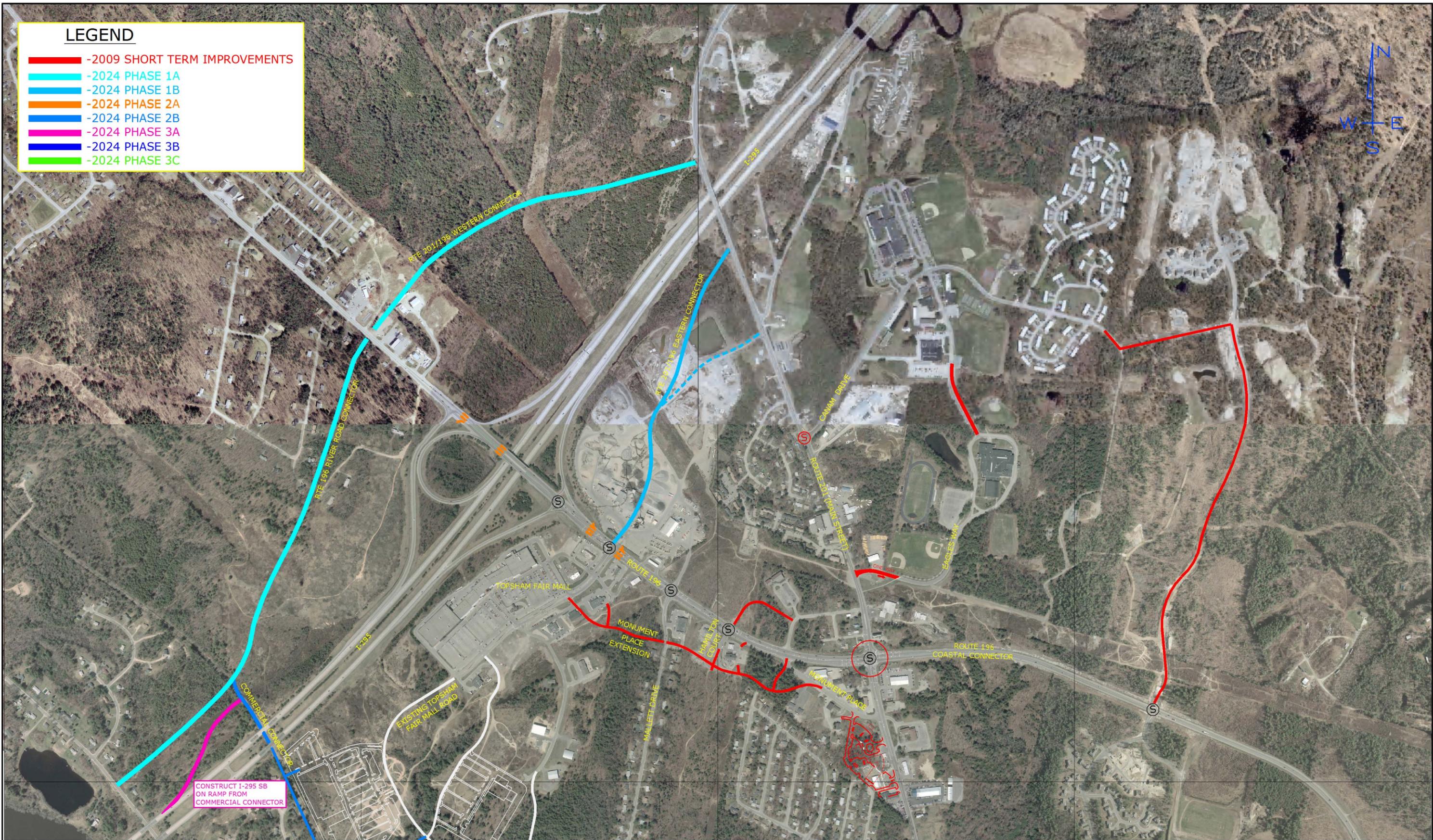
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Drawing Name: **2024 - PHASE 2B IMPROVEMENTS**

Project: **TOPSHAM TRANSPORTATION STUDY  
TOPSHAM, MAINE**

Figure No.  
**8**



Rev.	Date	Revision
-	-	-

Design: RLB	Date: DEC 2004
Draft: JF	Job No.: 974
Checked: PAH	Scale: 1"=750'±
File Name: 974-AERIAL-BASEMAP-CONCEPTS.DWG	

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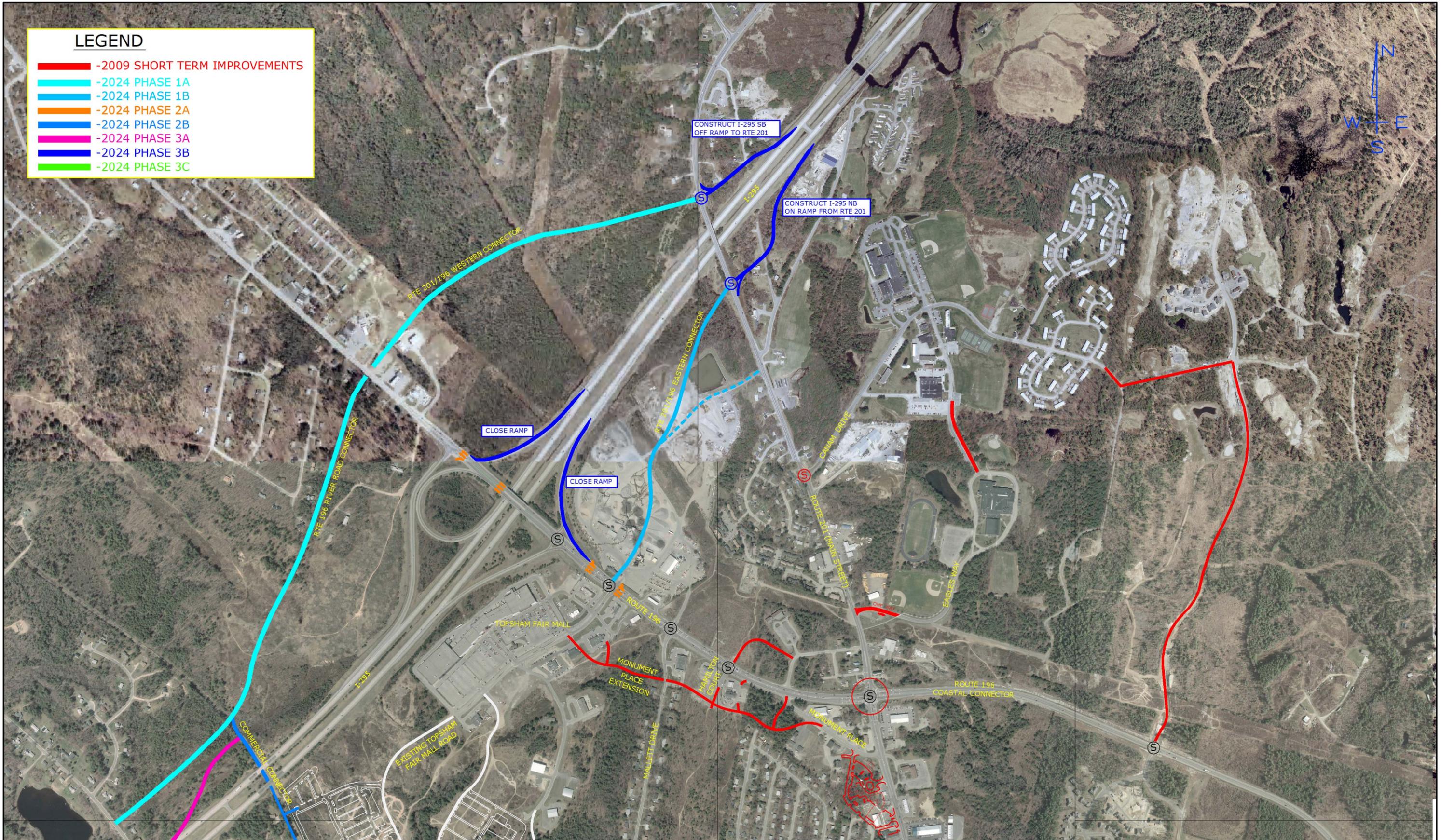
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 207-657-6910  
 FAX: 207-657-6912  
 E-Mail: mailbox@gorrillpalmer.com

Drawing Name:	<b>2024 - PHASE 3A IMPROVEMENTS</b>
Project:	TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE

Figure No.  
**9**

**LEGEND**

- -2009 SHORT TERM IMPROVEMENTS
- -2024 PHASE 1A
- -2024 PHASE 1B
- -2024 PHASE 2A
- -2024 PHASE 2B
- -2024 PHASE 3A
- -2024 PHASE 3B
- -2024 PHASE 3C



Rev.	Date	Revision

Design:	RLB	Date:	DEC 2004
Draft:	JF	Job No.:	974
Checked:	PAH	Scale:	1"=750'±
File Name:	974-AERIAL-BASEMAP-CONCEPTS.DWG		

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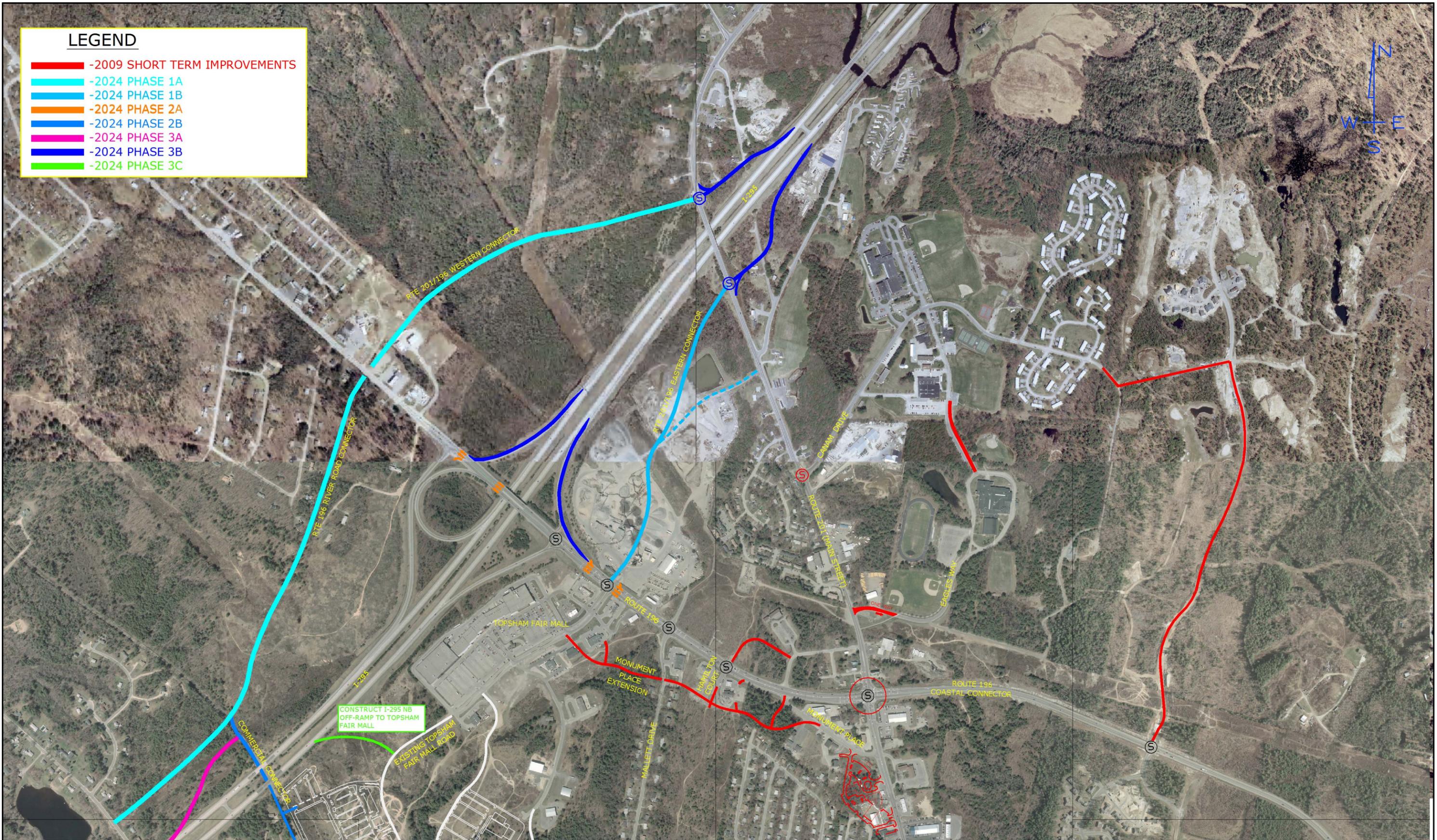
Drawing Name: **2024 - PHASE 3B IMPROVEMENTS**

Project: **TOPSHAM TRANSPORTATION STUDY  
 TOPSHAM, MAINE**

Figure No.  
10

**LEGEND**

- -2009 SHORT TERM IMPROVEMENTS
- -2024 PHASE 1A
- -2024 PHASE 1B
- -2024 PHASE 2A
- -2024 PHASE 2B
- -2024 PHASE 3A
- -2024 PHASE 3B
- -2024 PHASE 3C



Rev.	Date	Revision

Design:	RLB	Date:	DEC 2004
Draft:	JF	Job No.:	974
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File Name: 974-AERIAL-BASEMAP-CONCEPTS.DWG			

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Drawing Name:	<b>2024 - PHASE 3C IMPROVEMENTS</b>
Project:	TOPSHAM TRANSPORTATION STUDY TOPSHAM, MAINE

Figure No.  
**11**

# *Appendix 4*

## *Tables*

Commercial Gravity Model.....	4.1
Residential Gravity Model.....	4.2

Town	Population	Adjusted Population	Percent of Total	Route 201 from North		Route 201 from South		Route 196 from West		Route 196 from East		Route 24 from East		I-95 from South		I-95 from North		Total	
				Percent	Population	Percent	Population	Percent	Population	Percent	Population	Percent	Population	Percent	Population	Percent	Population	Percent	Population
Alna	675	338	50%		0	25%	84		0	75%	253		0		0		0	100%	338
Arrowsic	477	310	65%		0	25%	78		0	75%	233		0		0		0	100%	310
Auburn	23,203	5,801	25%		0		0	100%	5801		0		0		0		0	100%	5801
Bath	9,266	7,413	80%		0	25%	1853		0	75%	5560		0		0		0	100%	7413
Boothbay	2,960	1,480	50%		0	25%	370		0	75%	1110		0		0		0	100%	1480
Boothbay Harbor	2,334	1,167	50%		0	25%	292		0	75%	875		0		0		0	100%	1167
Bowdoin	2,727	2,045	75%	75%	1534		0	25%	511		0		0		0		0	100%	2045
Bowdoinham	2,612	2,612	100%	75%	1959		0		0		0	25%	653		0	5%	131	105%	2090
Brunswick	21,172	16,938	80%		0	75%	12703		0	20%	3388		0	5%	847		0	100%	16091
Cumberland	7,159	3,580	50%		0		0		0		0		0	100%	3580		0	100%	0
Dresden	1,625	1,219	75%	20%	244	10%	122		0	40%	488	10%	122		0	20%	244	100%	1097
Durham	3,381	2,536	75%		0	20%	507	80%	2029		0		0		0		0	100%	2536
Edgecomb	1,090	654	60%		0	25%	164		0	75%	491		0		0		0	100%	654
Falmouth	10,310	2,578	25%		0		0		0		0		0	100%	2578		0	100%	0
Freeport	7,800	6,240	80%		0	10%	624		0		0		0	90%	5616		0	100%	624
Gardiner	6,198	2,169	35%	5%	108		0		0		0		0		0	95%	2061	100%	2169
Georgetown	1,020	510	50%		0	25%	128		0	75%	383		0		0		0	100%	510
Gray	6,820	1,705	25%		0		0		0		0		0	100%	1705		0	100%	0
Greene	4,076	408	10%		0		0	100%	408		0		0		0		0	100%	408
Harpswell	5,239	4,191	80%		0	30%	1257		0	70%	2934		0		0		0	100%	4191
Lewiston	35,690	8,923	25%		0		0	100%	8923		0		0		0		0	100%	8923
Lisbon	9,077	5,446	60%		0		0	100%	5446		0		0		0		0	100%	5446
Litchfield	3,110	1,555	50%	15%	233		0		0		0		0		0	85%	1322	100%	1555
Monmouth	3,785	379	10%		0		0	30%	114		0		0		0	70%	265	100%	379
Newcastle	1,748	437	25%		0	25%	109		0	75%	328		0		0		0	100%	437
New Gloucester	4,803	1,201	25%		0	10%	120	40%	480		0		0	50%	600		0	100%	600
North Yarmouth	3,210	1,605	50%		0		0		0		0		0	100%	1605		0	100%	0
Phippsburg	2,106	1,053	50%		0	25%	263		0	75%	790		0		0		0	100%	1053
Pittston	2,548	1,019	40%	10%	102	10%	102		0	20%	204	10%	102		0	50%	510	100%	917
Poland	4,866	0	0%		0		0	80%	0		0		0	20%	0		0	100%	0
Pownal	1,491	1,118	75%		0		0	10%	112		0		0	90%	1006		0	100%	112
Richmond	3,298	2,474	75%	5%	124		0	5%	124		0	5%	124		0	85%	2102	100%	2350
Sabattus	4,486	2,692	60%		0		0	100%	2692		0		0		0		0	100%	2692
South Bristol	897	90	10%		0	25%	22		0	75%	67		0		0		0	100%	90
Southport	684	342	50%		0	25%	86		0	75%	257		0		0		0	100%	342
Topsham	9,100	9,100	100%	25%	2275	40%	3640	5%	455	15%	1365	15%	1365		0		0	100%	7735
Wales	1,322	661	50%		0		0	80%	529		0		0		0	20%	132	100%	661
West Bath	1,798	1,438	80%		0	40%	575		0	60%	863		0		0		0	100%	1438
West Gardiner	2,902	1,016	35%	5%	51		0		0		0		0		0	95%	965	100%	1016
Westport	745	447	60%		0	25%	112		0	75%	335		0		0		0	100%	447
Wiscasset	3,603	2,162	60%		0	25%	540		0	75%	1621		0		0		0	100%	2162
Woolwich	2,810	2,108	75%		0	25%	527		0	75%	1581		0		0		0	100%	2108
Yarmouth	8,360	5,016	60%		0		0		0		0		0	100%	5016		0	100%	0
<b>TOTALS</b>	<b>232,583</b>	<b>114,171</b>	<b>100%</b>	<b>6%</b>	<b>6630</b>	<b>21%</b>	<b>24278</b>	<b>24%</b>	<b>27622</b>	<b>20%</b>	<b>23123</b>	<b>2%</b>	<b>2365</b>	<b>20%</b>	<b>22553</b>	<b>7%</b>	<b>7731</b>	<b>100%</b>	<b>114,302</b>

Utilized for TIS

6% 20% 25% 20% 2% 20% 7% 100%



# *Appendix 5*

Capacity and Queue Analyses Sheets (On file at the Planning Department)