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MEMORANDUM

July 7th, 2005

To: Walt Kalina, Clough, Harbour & Associates

From: Jim Prost, Basile Baumann Prost & Associates, Inc
Chris Yake, Basile Baumann Prost & Associates, Inc.

Re: Tech Memo #2 –Traffic and Transportation Analysis

Please see our attached *Traffic and Transportation Analysis*. If you have any questions, please call us at (410) 266-7800.

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I. INTRODUCTION

1.1 Background

In recent decades, increasing volumes of vehicular traffic on Oswego Street and 2nd Street and elsewhere in the Village has tended to deteriorate the Village image and its business and pedestrian environments. Primary market area residents, Onondaga Lake patrons, and visitors now have great perceived and, during peak hours, real difficulty accessing the retail core. This situation is most acute for those attempting to access the core by crossing Oswego Street from the north.



A pedestrian attempting to cross Oswego Street

The increasing volumes of vehicular traffic through the Village create a hostile and unwelcoming environment for the retail pedestrian and primary market area (local) vehicular traffic. The high level of traffic has also brought with it unsightly overhead signage and restricted turn movements into the Village core during peak commuting periods.

These changes to Liverpool's psychological and physical environment are contrary to the image and goals of a village retail environment catering to shoppers and pedestrians. According to the 2001 Onondaga County Settlement Plan, Oswego Street and 2nd Street "have been allowed over time to gradually straighten and widen, such that the downtown of Liverpool is no longer an environment that supports pedestrian life."

As a result, retail activity and community character within the Village core have suffered. Given the nature of the traffic passing **through** the Village and the current and anticipated character of the vast majority of Village retail, the association between vehicular traffic and retail sales traffic is generally negative. That is, additional traffic negatively impacts Village image, retail sales, and activity.

Conversely, a reduction in **through** traffic, primarily on Oswego Street, could facilitate enhanced business activity for most Village retail operations by lifting access barriers to the retail core, encouraging more **destination** traffic, creating a more pedestrian friendly environment, enhancing the overall image of the area, and facilitating mixed use redevelopment.

This *Traffic and Transportation Analysis* models the potential retail sales impact of reducing vehicular **through** traffic by examining the existing and prospective traffic volumes and pedestrian activities in the Village of Liverpool study area. It utilizes transportation and pedestrian sketch plan methods to conduct a location performance model that measures the relationship between existing and anticipated retail sales volumes and all forms of traffic. The retail traffic and sales models take into consideration existing traffic volumes, pedestrian counts, retail sales, estimated conversion factors, and projected traffic volumes by through and destination trips and sales volumes. The analysis includes retail traffic volume analysis and *Village Enhancement* assumptions derived from the *Village of Liverpool Commercial Market and Retail Analysis*.

1.2 Case Studies

Proponents of neotraditional planning and urban design theories (e.g. New Urbanism, Traditional Neighborhood Development) suggest that more pedestrian friendly environments encourage and promote retail activity by inviting local residents to walk and shop in their own neighborhoods. The visual perception and impact of vehicular traffic in these districts is mitigated or “calmed” by a number of pedestrian features including sidewalks, crosswalks, ground floor retail, continuous street walls, treed planting strips, street furniture (e.g. benches, lampposts), and a sense of enclosure (i.e. safety) created through the combination of vertical buildings, trees, and narrow streets.



Main Street (Skaneateles, NY)

As is demonstrated in historic mixed-use retail districts (e.g. Skaneateles, Ithaca, Annapolis, MD, Boston’s Beacon Hill) destination retail shoppers from a wider market area are also more likely to be attracted to visually interesting places built to a pedestrian scale. In addition, pedestrian friendly environments can also help residents live less car-dependent lifestyles, both encouraging mixed-use development and increasing the amount of discretionary income they can spend on things other than transportation. Conversely, automobile oriented environments require vehicle ownership, discourage destination trips, limit the potential for cross-shopping, and inhibit a mix of uses.

Certain retail operators (e.g. auto oriented facilities), on the other hand, associate and/or perceive increasing levels of vehicular traffic with enhanced spillover and retail sales. Consequently, certain small business owners can also be the most vocal opponents of traffic calming projects because they anticipate losing sales due to changes to the streetscape and the perceived accessibility of a retail district. The failure of many downtown pedestrian-only malls has contributed to this perception. Owners in areas considering enhancements to the pedestrian environment and changes in the nature of traffic patterns are often not aware of how successful similar measures have been for their counterparts in other jurisdictions.

National case studies suggest that the enhancement of the pedestrian environment and modifications to traffic patterns within a retail area can have significant economic benefits including increases in retail traffic, sales, and property values and a decrease in vacancy rates. According to a study by the Local Government Commission’s Center for Livable Communities, pedestrian improvements as part of a larger downtown strategy can improve overall retail sales by 30 percent¹. In addition to increasing sales and reducing limiting motor vehicle speeding and cut-through traffic, traffic calming measures in West Palm Beach, FL were reported to stimulate business activity, attract private investment, reduce crime, promote home ownership, and support historic preservation efforts². Twenty-six international studies showed a positive retail sales effect, with shops inside traffic calmed areas being more successful than those outside³.

¹ Local Government Commission’s Center for Livable Communities. (2000). The Economic Benefits of Walkable Communities (http://www.lgc.org/freepub/PDF/Land_Use/focus/walk_to_money.pdf).

² Lockwood, Ian and Timothy Stillings (1998). Traffic Calming for Crime Reduction and Neighborhood Revitalization (www.ite.org/traffic/documents/AHA98A19.pdf).

³ Hass-Klau, C. (1993). Impact of pedestrianization and traffic calming on retailing: a review of the evidence from Germany and the U.K. *Transport Policy*, 1, No 1, 21-31 as cited in Transport and The Environment (London: Royal Commission on Environmental Pollution Eighteenth Report, 1994) p.182.

In most cases, the enhancement of the pedestrian environment is only one component of a comprehensive marketing and physical improvement plan akin to the *Village Enhancement* strategy. A survey of 16 California Main Street communities⁴ found that, over a median 14-year period, marketing and physical improvement programs including traffic calming measures were associated with the following results:

- Retail sales increase of 105% (compared to 77% for non-Main Street communities)
- Commercial property values increase of 167%
- Storefront vacancy rates decline of 76%
- Retail and office rental rates increases of 65% and 71%, respectively
- \$7.13 in public and private improvements for every dollar invested in the program

Surveys of small businesses themselves indicate support for pedestrian enhancements. A majority of neighborhood merchants in San Francisco reported that implemented traffic calming measures increased:

- Overall street attractiveness
- Pedestrian safety
- The number of customers using alternative forms of transportation
- Resident patronage of local shopping
- Employee convenience

Surveyed merchants also indicated other positive impacts related to traffic calming. Cited impacts included increased sales from reduced speeds, benefits from increased traffic congestion along the street (e.g. exposure), additional customers from outside the neighborhood, and overall study area revitalization. Overall, two-thirds of merchants felt that traffic calming intervention had a generally positive effect on their sales, and also would support more traffic calming projects within the neighborhood⁵.

⁴ Eichenfield & Associates (2002) *Strategies for Revitalizing our Downtowns and Neighborhoods: Evaluating California Main Street Programs* (http://www.lgc.org/freepub/PDF/Land_Use/reports/evaluating_main_street1.pdf).

⁵ Drennen, Emily (2003). *Economic Effects of Traffic Calming on Urban Small Businesses*, San Francisco State University.

1.3 Summary of Findings

Rather than adversely impact Village core businesses, traffic reduction on Oswego Street could help stimulate business activity by:

- Reducing real and perceived congestion
- Encouraging more destination traffic
- Facilitating pedestrian activity and cross shopping trips
- Improving the retail ambience and overall attractiveness of the Village retail and services
- Allowing for new mixed use development including new specialty retail, dining and drinking establishments, and residential uses

Retail sales increases of up to 23 percent could be experienced as a result of reduction of through traffic on Oswego Street and a related increase of destination traffic on 1st and 2nd Streets. Reduction of through traffic, however, could impact sales to auto oriented uses on Oswego Street (filling stations, fast food dining).

Findings

- Reducing traffic on Oswego Street has a generally positive impact upon on overall retail volume with potential sales increases of up to 23 percent
- Encouraging retail pedestrian activity on 1st and, to a lesser extent, 2nd Street is a critical component of any *Village Enhancement* strategy
- A 30 percent increase on 1st Street and 20 percent increase on 2nd Street in retail pedestrian traffic should be targeted as part of the implementation plan
- Reducing through traffic on Oswego Street is consistent with New Urbanist, traditional neighborhood design (TND), and pedestrian oriented planning concepts
- Traffic reduction will encourage movement away from auto oriented uses (filling stations, fast food dining) toward existing village uses (food, restaurants, specialty retail, services) serving visitors and primary market area residents
- Traffic reduction and an enhanced pedestrian environment could facilitate mixed-use development, thereby introducing new residential development and spending power
- Additional studies of existing traffic conditions to determine trip origins and destinations are recommended to better estimate the proportion of destination traffic to through traffic

Assuming a *Village Enhancement* strategy is adopted, the alteration of traffic patterns in the Village core and along Oswego Street will facilitate pedestrian oriented redevelopment and increase retail sales to local residents and visitors. Consistent with the principles of New Urbanism, this scenario could increase retail traffic and study area attractiveness by introducing mixed-use development, enlarging the core's resident population, creating better visual and physical linkages to the waterfront, and bridging the physical and psychological gaps (e.g. psychological divide between the Village core and neighborhoods north of Oswego Street) in the pedestrian network through traffic calming measures and pedestrian scale land uses.

2. TRAFFIC & TRANSPORTATION ANALYSIS

2.1 Sketch Planning Methodology

There are two primary methods for determining levels of pedestrian activity, a more logical less data intensive approach versus the use of detailed, information heavy, usually gravity oriented demand forecasting models. The less data intensive approach is also called a "sketch plan." This method is used to estimate pedestrian volumes under existing and project future conditions in a pedestrian activity area. This tool is used to identify areas of high-pedestrian traffic based on existing traffic data without the requirement to conduct detailed pedestrian counts on all facilities or integrate with large regional travel demand models. A sketch plan is also used to forecast changes in pedestrian volumes as a result of future land use or transportation trip generation changes.

Using Average Daily Traffic (ADT) counts as the source of car/walk-linked trips, Ercolano, Olson, and Spring (1997) developed a sketch plan method to estimate pedestrian traffic in Plattsburgh, NY⁶. All through and commercial (i.e. deliveries, pick-up, drop-off) traffic was eliminated from the analysis (approximately 70 percent and 20 percent respectively). By multiplying the residual, or destination, traffic by average persons per vehicle and adding a proportion of non-car linked trips, they estimated the total number of pedestrian trips generated per day.

2.2 Retail Traffic

In developing a sketch plan model converting the number of pedestrian trips generated by 1st, 2nd, and Oswego Streets into retail pedestrian trips, the following assumptions were made based on existing traffic counts, primary research conducted for the *Village of Liverpool Commercial Market and Retail Analysis*, our understanding of the Liverpool area, existing industry standards and fitting or calibrating the results of our retail market analysis to the sketch plan model:

- Given the hierarchical road network, land uses, existing traffic volumes, local interviews, and experience elsewhere through traffic is estimated to represent an increasing share of total traffic from 1st (25 percent) to 2nd (50 percent) to Oswego Street (75 percent)
- Based on industry standards and local discussions, commercial traffic (e.g. deliveries, business services) is assumed to represent 20 percent of all traffic on all three streets
- Destination traffic represents the number of vehicles on a purposeful trip (e.g. errand, going to work, going to residence, shopping) on a given street
- Given the existing retail environments the retail survey, the retail market study and the calibration of traffic volumes to retail sales and future trends and scenarios, the retail capture rate of destination traffic is estimated to be 60 percent on 1st, 30 percent on 2nd (30 percent), and 10 percent on Oswego Street
- The average vehicle occupancy based on industry standards is assumed to be 1.5
- Total retail pedestrian generation (vehicle) represents the number of retail pedestrians accessing the Village of Liverpool study area via a given street
- Given the walkability of each street, pedestrian intercept survey data, and future scenarios, retail walk trips are estimated to represent decreasing shares of retail vehicular trips from 1st (10 percent) to 2nd (5 percent) to Oswego Street (1 percent)

The Average Daily Traffic (ADT) on 1st Street in 2003 was 3,900. Of this daily total, 975 vehicles or 25 percent is assumed to be through traffic and 780 vehicles or 20 percent is assumed to be commercial traffic including deliveries and business services. Of the remaining destination traffic, 1,287 vehicles or 60 percent are assumed to be retail-oriented traffic.

⁶ Ercolano, James M., Jeffrey S. Olson, Douglas M. Spring, *Sketch-Plan Method for Estimating Pedestrian Traffic for Central Business Districts and Suburban Growth Corridors*, Transportation Research Record 1578, Washington, DC, 1997.

Given average vehicle occupancy of 1.5, this traffic represents 1,931 retail pedestrians accessing the Village of Liverpool study area by vehicle. Based upon pedestrian intercept survey data, 10 percent of this total approximates the number of additional retail pedestrians that access the study area through walk-only trips. In total, the vehicles and walkers traveling along 1st Street represent approximately 2,124 retail pedestrians per day for the study area.

The Average Daily Traffic (ADT) on 2nd Street in 2003 was 9,783. Of this daily total, 4,892 vehicles or 50 percent is assumed to be through traffic and 1,957 vehicles or 20 percent is assumed to be commercial traffic including deliveries and business services. Of the remaining destination traffic, 880 vehicles or 30 percent are assumed to be retail-oriented traffic. Given average vehicle occupancy of 1.5, this traffic represents 1,321 retail pedestrians accessing the Village of Liverpool study area by vehicle. Based upon pedestrian intercept survey data, 5 percent of this total approximates the number of additional retail pedestrians that access the study area through walk-only trips. In total, the vehicles and walkers traveling along 2nd Street represent approximately 1,387 retail pedestrians per day for the study area.

The Average Daily Traffic (ADT) on Oswego Street in 2003 was 27,800. Of this daily total, 20,850 vehicles or 75 percent is assumed to be through traffic and 5,560 vehicles or 20 percent is assumed to be commercial traffic including deliveries and business services. Of the remaining destination traffic, 139 vehicles or 10 percent are assumed to be retail-oriented traffic.

Given average vehicle occupancy of 1.5, this retail-oriented traffic represents 209 retail pedestrians accessing the Village of Liverpool study area by vehicle. Based upon pedestrian intercept survey data, 1 percent of this total approximates the number of additional retail pedestrians that access the study area through walk-only trips. In total, the vehicles and walkers traveling along Oswego Street represent approximately 211 retail pedestrians per day for the study area.

**Table 1:
Estimated Retail Traffic
2003 Existing Conditions
Village of Liverpool Study Area**

	Oswego Street	1st Street	2nd Street
Average Daily Traffic (ADT)	27,800	3,900	9,783
Through Traffic - Percentage	75%	25%	50%
Through Traffic	20,850	975	4,892
Commercial Traffic - Percentage*	20%	20%	20%
Commercial Traffic	5,560	780	1,957
Destination Traffic	1,390	2,145	2,935
Retail Capture Rate	10%	60%	30%
Retail Destination Traffic	139	1,287	880
Average Vehicle Occupancy	1.5	1.5	1.5
Total Retail Pedestrian Generation (Vehicular)	209	1,931	1,321
Total Retail Pedestrian Generation (Pedestrian)**	2	193	66
Total Retail Pedestrian Generation	211	2,124	1,387

Sources: Syracuse Metropolitan Transportation Council, ESRI Business Solutions, Ercolano, Olson, & Spring, BBP Associates

* Drive Through, Trucks, Service, Delivery, etc.

** Based on percentages of retail pedestrian generation (vehicular): 1st Street - 10%, 2nd Street - 5%, Oswego Street - 1%

2.3 Retail Sales

- Retail sales derived from the pedestrian sketch plan were calibrated with the *Village of Liverpool Commercial Market and Retail Analysis*.
- A highly consistent calibration/fit was established given estimates of traffic characteristics, capture rates, sales volumes based on industry standards, pedestrian intercept surveys, and the *Village of Liverpool Commercial Market and Retail Analysis*.
- Annual retail pedestrian generation is calculated by multiplying the estimated daily retail pedestrian traffic by the number of shopping days on which that traffic can be expected
- Based on pedestrian intercept survey results, 50 percent of retail pedestrians are assumed to be retail shoppers (i.e. purchase retail goods during a retail trip)
- Based on the Liverpool pedestrian intercept survey data, retail shoppers spend an average of \$35 per trip to the Village of Liverpool study area
- Annual retail sales developed from pedestrian sketch plan are highly consistent with sales estimates independently derived from evaluation of secondary data, merchant interviews, and retail employee and square footage averages
- The traffic analysis displays the significant importance of attracting vehicles and pedestrians to 1st and 2nd Streets, which account for approximately 57 and 37 percent respectively of total study area retail sales
- Traffic on Oswego Street is relatively less important accounting for approximately 6 percent of total study area retail sales

The 2,124 average daily retail pedestrians accessing the study area from 1st Street are expected to shop on an average of 330 days per year. The number of annual shopping days factors in both regular (e.g. closed on Mondays) and holiday store closures. By multiplying the number of daily retail pedestrians by the number of estimated shopping days, a total of 700,772 annual retail pedestrians are generated based on the . Since an estimated 50 percent of these pedestrians are shoppers and spend an average of \$35 per trip, retail sales generated from 1st Street traffic amount to approximately \$12.3 million per year in 2003 constant dollars.

By multiplying the number of daily retail pedestrians (1,387) generated by 2nd Street by the number of estimated shopping days, a total of 457,624 annual retail shoppers are generated. Since an estimated 50 percent of these pedestrians are shoppers and spend an average of \$35 per trip, retail sales generated from 2nd Street traffic amount to approximately \$8 million per year in 2003 constant dollars.

By multiplying the number of daily retail pedestrians (211) by the number of estimated shopping days, a total of 69,493 annual retail shoppers are generated. Since an estimated 50 percent of these pedestrians are shoppers and spend an average of \$35 per trip, retail sales generated from Oswego Street traffic amount to approximately \$1.3 million per year in 2003 constant dollars.

**Table 2:
Estimated Annual Retail Sales by Retail Shopper Generation
2003 Existing Conditions
Village of Liverpool Study Area**

	Oswego Street	1st Street	2nd Street	Totals
Total Retail Pedestrian Generation Per Shopping Day	211	2,124	1,387	3,510
Annual Shopping Days*	330	330	330	330
Annual Retail Pedestrian Generation	69,493	700,772	457,624	1,158,396
Annual Retail Shopper Generation**	34,747	350,386	228,812	579,198
Average Spent Per Shopper***	\$35	\$35	\$35	\$35
Expected Annual Retail Sales	\$1,221,049	\$12,313,122	\$8,040,829	\$21,575,000
Percent by Sub Area	5.7%	57.1%	37.3%	100.0%

Sources: BBP Associates

* Based on weekly operations and holidays

** Based on industry standards, 50% of all retail traffic

*** Based on pedestrian intercept survey data

2.4 Retail Traffic Scenarios

By creating a more pedestrian friendly environment in accordance with the precepts of New Urbanism, traffic calming measures such as centerline planted medians and bike lanes in the Village of Liverpool have the potential to reduce vehicular traffic volumes passing through and adjacent to the study area by increasing the travel time costs to travelers.

With the highest percentage of through traffic, Oswego Street is more likely to see a reduction in traffic as commuters to and from Syracuse opt for alternate routes. Alternatively, an enhanced pedestrian environment could increase the levels of retail traffic along 2nd Street and, in particular, 1st Street.



The application of the traffic and pedestrian model below and discussions with local officials highlights possible scenarios in which traffic on Oswego Street is reduced between 10 and 40 percent. Using this range of Oswego Street traffic reduction, destination traffic is expected to remain stable or increase between 10 and 30 percent on both 2nd Street and 1st Street. The high end of this range represents the empirical findings of the Local Government Commission study and the lower figure assumes a more conservative impact. The reduction of traffic on Oswego Street and the subsequent potential increase of activity on 2nd and 1st Streets will allow and facilitate implementation of the *Village Enhancement* strategies.

**Table 3:
Reductions in Oswego Street Traffic: Range of Expected Outcomes
Village of Liverpool Study Area**

Oswego Street Traffic	Change in 1 st Street	Change in 2 nd Street
10% to 40 % reduction	10% to 30 % increase	0% to 20 % increase

Source: BBP Associates

On 2nd Street (Route 370), any reduction in through traffic related to the traffic calming measures on Oswego Street is expected to be offset by an increase in destination traffic (e.g. retail, residential). It is assumed that traffic levels will remain stable or increase up to 20 percent. It is not assumed that there will be any measurable diversion of through traffic to 2nd Street. Rather the reduction in perceived congestion encourages additional destination traffic to 2nd Street consistent with the retail revitalization plans to increase primary market area residential capture rates.

Given its low level of through traffic, 1st Street is not expected to be adversely affected by a reduction in traffic along Oswego Street. A more amenable pedestrian environment is projected to attract additional destination and, more specifically, retail traffic. Traffic along 1st Street is expected to increase between 10 and 30 percent, consistent with the *Village Enhancement* strategy. Again, the high end of this range represents the empirical findings of the Local Government Commission’s study and the lower figure assumes a more conservative impact.

2.5 Retail Shopper Generation

As displayed in Table 2, the existing number of annual retail shoppers in the study area is approximately 613,944. The percentages of retail shoppers generated by 1st, 2nd, and Oswego Streets are 57 percent, 37 percent, and 6 percent respectively.

Given the potential to increase the attractiveness of the study area’s retail environment, the overall number of retail shoppers to the Village is not expected to decrease with a reduction in traffic along Oswego Street. The reduction of retail activity on Oswego Street will represent a small decrease relative to the increases on 1st and 2nd Streets. For the range of pedestrian traffic scenarios, the number of retail shoppers is expected to range from 635,084 to 761,348. Both of these estimates reflect the limited impact of Oswego Street’s primarily through traffic upon destination retail traffic within the study area.

Table 4:
Reductions in Oswego Street Traffic: Range of Expected Retail Shopper Generation Outcomes
Village of Liverpool Enhancement
Village of Liverpool Study Area

	Oswego Street	1 st Street	2 nd Street	Totals
Existing Retail Shoppers	34,747	350,386	228,812	613,944
Projected Retail Shoppers	20,848 to 31,272	385,424 to 455,501	228,812 to 274,575	635,084 to 761,348
Projected Change in Retail Shoppers	-13,899 to -3,475	35,038 to 105,115	0 to 45,763	21,140 to 147,404
Projected Percentage Change in Retail Shoppers	-40% to -10%	10% to 30%	0% to 20%	3% to 24%

Source: BBP Associates

2.6 Future Retail Sales

Based on retail traffic projections, the range of retail sales is expected to advance from approximately \$21.6 million to a range of \$22.3 to almost \$26.8 million, an increase of between \$742,892 and \$5,179,997 or 3.2 percent and 24.1 percent. The most likely scenario would be in the midpoint of that range representing sales of approximately \$24.5 million accounting for a \$2.9 million increase or 13.4 percent.

Table 5:
Reductions in Oswego Street Traffic: Range of Expected Retail Sales Outcomes
Village of Liverpool Enhancement
Village of Liverpool Study Area
2003 Constant Dollars

	Oswego Street	1 st Street	2 nd Street	Totals
Existing Retail Sales	\$1,221,049	\$12,313,122	\$8,040,829	\$21,575,000
Projected Range in Retail Sales	\$732,629 to \$1,098,944	\$13,544,434 to \$16,007,059	\$8,040,829 to \$9,648,995	\$22,317,892 to \$26,754,997
Projected Change in Retail Sales	-\$488,420 to -\$122,105	\$1,231,312 to \$3,693,937	\$0 to \$1,608,166	\$742,892 to \$5,179,997
Projected Percentage Change in Retail Sales	-40% to -10%	10% to 30%	0% to 20%	3% to 24%

Source: BBP Associates

Since only 5.7 percent of total retail sales is derived from Oswego Street traffic; a “theoretical” complete elimination of all Oswego Street retail traffic would only require a concomitant 6.0 percent increase of retail traffic on 1st and 2nd Streets to compensate for lost sales. Therefore, as long as traffic calming on Oswego does not adversely impact access to 1st or 2nd Streets, almost any reduction in through traffic on Oswego would more than likely have positive sales impacts for the predominantly destination and/or local serving retail found in the Village Center.

2.7 Conclusion/Next Steps

The high volume of through traffic on Oswego Street does not benefit retail sales activity in the Village of Liverpool. Less than 6 percent of the Village’s retail sales are derived directly from Oswego Street.

Through traffic on Oswego Street creates a negative retail market image of congestion and speed while affording most of the Village retail limited access or visibility. Indeed, the Oswego Street corridor undermines the Village’s unique market character by creating a hostile highway oriented physical image with large overhead signs and vast lanes of traffic while impeding turning movements and pedestrian connectivity to the Village core. These existing conditions are inconsistent with the Village’s character and desire for a historic, New Urbanist, mixed-use community.

Reduction in through traffic, attraction of destination traffic, and a more pedestrian friendly environment is supportive of the market opportunities identified in the *Village of Liverpool Commercial Market and Retail Analysis*. The creation of a more destination oriented, pedestrian village core with a blend of mutually supportive retail and residential users is a key element of the *Village Enhancement* revitalization program in which Liverpool creates a unique environment based on its existing and historic character.

Additional traffic analysis, such as origin and destination studies may be desirable to further confirm the assumptions (e.g. percentage of destination traffic versus through traffic) of this sketch plan model. Traffic analyses, traffic calming measures, and pedestrian oriented design concepts must be refined to assure that through traffic is not diverted to the Village, destination traffic can more easily access the core, and a pedestrian friendly, mixed use historic village environment is fully realized. Furthermore, traffic and transportation sketch plan and market analysis findings need to be integrated into a retail revitalization implementation strategy which in turn must be a fundamental building block of the Village’s master plan.