ASSESSMENT OF TRANSPORTATION NEEDS FOR BUFFALO'S WATERFRONT REDEVELOPMENT

Prepared for:

The Congress for the New Urbanism

and the Center for Neighborhood Technology

Prepared by:

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INTRODUCTION

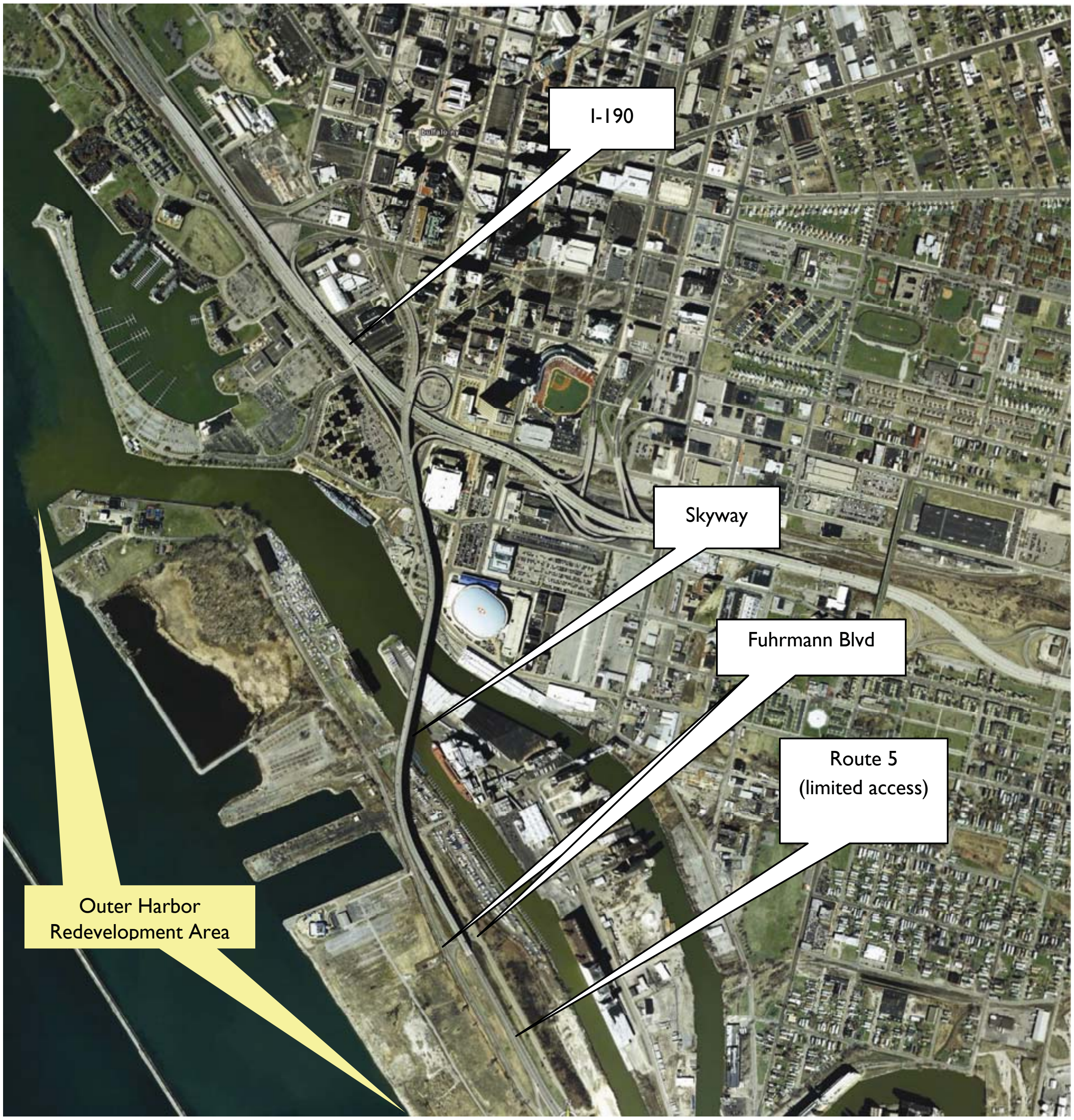
The Skyway Bridge is a component of a grade-separated route along the Lake Erie waterfront designed to provide convenient access to the Southtowns. Built in the mid-1950s, the structure has served beyond its design life and will require significant structural repairs if it is to be maintained. With the Federal and State Departments of Transportation confronting shrinking budgets, it is an ideal time to consider less expensive, alternatives to the reconstruction of the Skyway that enhance mobility and expand private investment from downtown Buffalo to the strategically important Outer Harbor neighborhood. Buffalo is being given a second chance to address its transportation infrastructure needs and can do so in a way that adds value to the community.

The NYSDOT has identified possible reconfigurations of the Buffalo Skyway and the Fuhrmann Boulevard in their Southtowns Connector plan. Currently, Route 5 enters the Outer Harbor via the elevated Skyway, and continues south as a limited access facility with parallel service roads. South of Ridge Road, the name of Route 5 changes to Hamburg Turnpike, and then changes again to Lakeshore Road south of the Milestrip Road interchange. For purposes of this report, we will refer to the entire corridor as the Route 5 corridor, see figure 1. The NYSDOT Southtowns Connector Environmental Impact Study provides an opportunity to consider the appropriate and desirable future transportation facilities for providing access to Buffalo's Outer Harbor area. The redevelopment planning for the Outer Harbor Area, reconfiguration of Fuhrmann Boulevard and the elimination of tolls on I-190 have important implications for access to the Outer Harbor Area. These impacts must be considered in the planning and design of an appropriately scaled multi-modal urban street system for Buffalo's waterfront.

This report explores the opportunity to provide access to the Outer Harbor with a new grade-level lift bridge and multi-modal boulevard. Poor access to the Outer Harbor is currently stifling waterfront redevelopment due to the obstruction of the Skyway Bridge and its emphasis on through traffic at the expense of local circulation. Route 5 is not needed as a grade separated facility as it is redundant with I-90, which also travels just a short distance inland from the lakeshore. The traffic volumes on Route 5 range from 41,500 at the Skyway crossing of the Buffalo River to approximately 22,000 at Lake Shore Drive, which is well below the design capacity of the existing four-lane limited access facility. The Skyway is also a liability in terms of its high maintenance costs and low reliability due to frequent closures. The Skyway often closes in the winter due to severe weather from Lake Erie, so I-90 often must serve as an alternative for additional traffic and does so efficiently. Different types of access, in the form of an at-grade bridge or bridges, would provide for safer travel and would be more supportive of the vision for the outer harbor.

As Buffalo is aware, traffic has both positive and negative impacts. It can bring economic benefit but can also overwhelm quality of life. In the Route 5 corridor, traffic has been attracted to travel through the Outer Harbor while adding little to the economic vitality of the city. Buffalo has an opportunity to reconfigure the Skyway and Route 5 in a manner that simultaneously saves millions of dollars in reconstruction costs and enhances adjacent land values. At this point, almost no one is building new freeways in cities and several cities have removed or are planning to remove freeways from their central business districts. With transportation funds short at the state and federal levels, now is a good time to remove the Skyway in favor of less costly infrastructure that enables Buffalo to meet its goals for waterfront revitalization.

Figure 1: Buffalo Outer Harbor and Skyway Bridge



Source: Google Earth

Freeway Effects on Cities

Limited access highways were originally intended for long distance travel between cities for interstate commerce and national defense[1]. However, the highway program was not only built in rural areas but also in urban centers. Cities, including Buffalo, were lured into this idea by the promise of high-speed travel through metropolitan areas. However, limited access highways have different impacts in urban settings with travelers choosing freeways for local trips. The unintended consequences of these travel patterns are congested urban freeways and interchanges along with decentralized development and longer trips at a regional scale.

Traditional urban street networks provide the most efficient way to distribute traffic within cities. Densely spaced urban street networks, typical of downtown urban cores and older neighborhoods, are better suited to the needs of shorter trips, which form the vast majority of urban traffic. Street networks have a greater ability to absorb, disperse, and distribute traffic. Networks provide many choices of routes due to their parallel streets and frequency of intersections. This redundancy allows travelers to choose other options if one route is congested.

In contrast, limited access highways create a number of harmful impacts on the urban transportation system and surrounding land uses. Urban freeways impede the function of urban street networks by interrupting the street grid and imposing barriers to through traffic. With limited interchanges and off-ramps, traffic using the freeway is concentrated at specific points and can overload the local street system. Buffalo's Skyway performs in a similar way, with limited points of entry and exit, see figures 2 and 3.

Figure 2: Skyway Bridge recently after construction.

The negative impacts of urban freeways go far beyond these traffic-related impacts. By consuming large amounts of land, freeways create large gaps in the urban fabric thereby reducing walkability. Elevated

[1] Memorandum for the Record; Meeting in the President's Office – Interim Report on the Interstate Highway Program – April 6, 1960, 10:35 A.M. http://www.eisenhower.archives.gov/dl/InterstateHighways/InterstateHighwaysdocuments.html

highways restrict views and create aesthetic barriers in addition to physical ones. Noise and air pollution add to the mix and make the surrounding areas unpleasant and degraded. All of these factors result in decreased quality of life and are reflected in decreased property values and underdeveloped nearby properties.

Figure 3: Traveling toward Downtown Buffalo on Skyway Bridge.

Redevelopment of Buffalo's Waterfront

The City of Buffalo wishes to transform the lakefront and riverfront into more attractive destinations[2]. Numerous proposals for the Outer Harbor area emphasize building on the waterfront asset with a combination of private and public spaces. Proposals along the Inner Harbor, Downtown, and the Buffalo River are similar in their desire for connected, walkable waterfront destinations and neighborhoods. Corresponding transportation infrastructure that supports multiple modes of travel is required for these proposals to be successful. Simply maximizing vehicular throughput will prevent this vision from being realized.

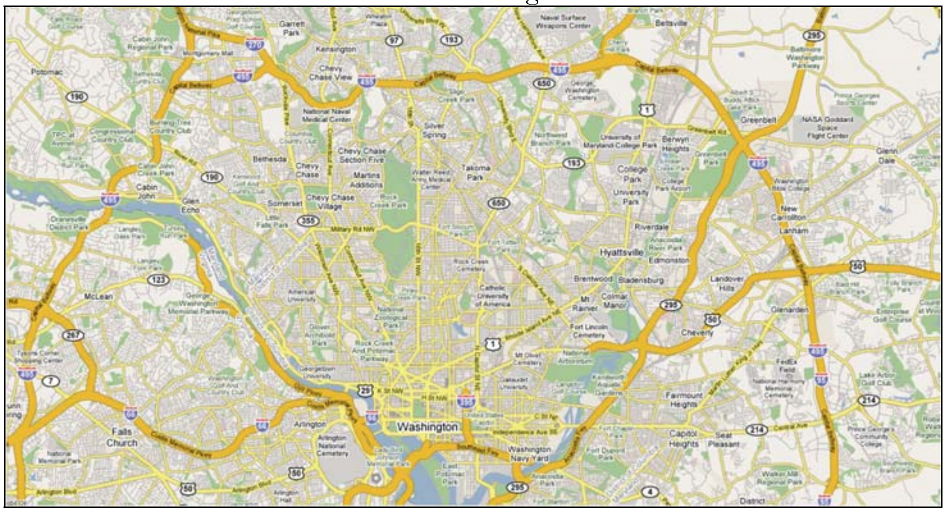
Transportation facilities should be designed in conjunction with community goals. Under optimum conditions, freeway lanes can move more cars per lane per hour than boulevard lanes. This advantage can disappear during peak travel times or if weather or disabled vehicles interrupt traffic flow. However, evaluating facilities with this criterion is highly misleading and results in automobile-focused development at the expense of high quality urban places.

Several major North American cities have evolved without freeways cutting through their center and instead rely on dense street networks to carry traffic. Figure 4 compares the freeway and street networks of Vancouver, BC and Washington DC with that of Buffalo, showing maps of the same scale. Vancouver and Washington DC have relatively large "intact" urban areas, which are not traversed by freeways. In contrast, Buffalo has several freeways cutting through its core.

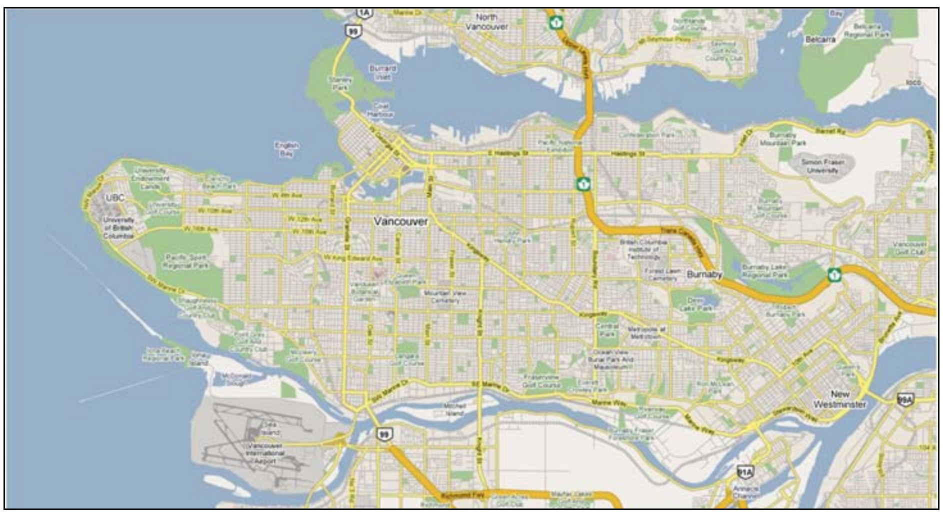
[2] The Buffalo Waterfront Corridor Initiative: An Inventory and Analysis of Buffalo's Waterfront Planning Legacy. August 8, 2003. City of Buffalo with Wendel Duchscherer, The Urban Design Project, and the Friends of the Buffalo Niagara River.

Figure 4: Freeway and Street Networks of Three North American Cities

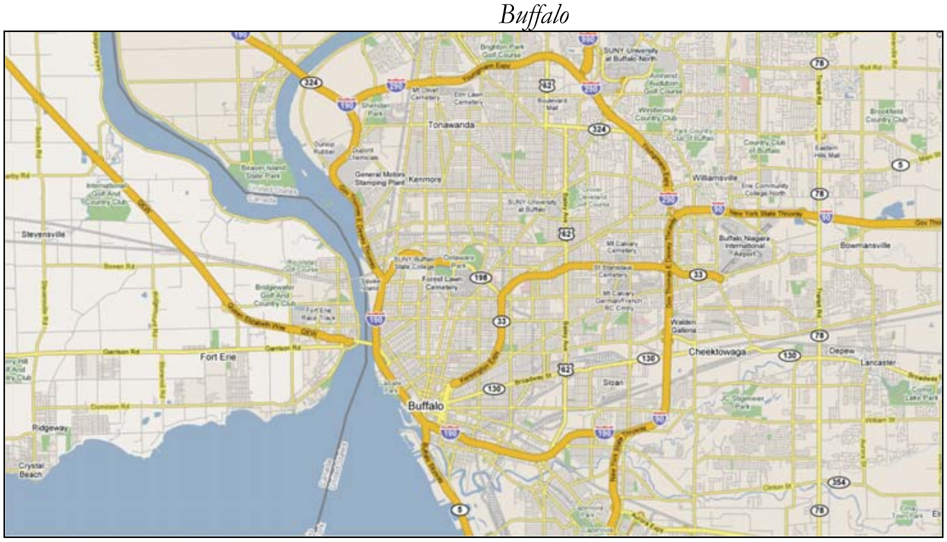
Washington DC



Vancouver



Buffalo



Source: www.google.com/maps; displayed at same scale

Does Buffalo Need the Skyway?

The intended high-speed function of the Skyway is duplicated by I-90 a short distance to the east. With limited connections between the downtown and the Outer Harbor area, the Skyway fails to provide reasonable access.[3] Replacing the Skyway with a surface street and a lift bridge would provide more direct access that supports economic development.

Freeways have been successfully replaced in other U.S. cities including recent projects in Milwaukee and San Francisco. In these cases, some traffic engineers forecast disastrous congestion. But these scenarios have not occurred. The general pattern is that the pre-replacement traffic volume is divided into three components: 1) traffic that is carried by the replacement street system, 2) traffic that switches to other routes, and 3) traffic that disappears as people vary their selection of destinations.

Generally, only a portion of the freeway traffic is carried by the replacement street. For example, San Francisco recently replaced the Central Freeway which carried up to 93,100 vehicles per day with Octavia Boulevard which was carrying 44,859 vehicles per day 6 months after opening.[4] In general the replacement street will be slower for through traffic, so through traffic will tend to shift to other routes.

What may be surprising is that some of the through traffic "disappears", i.e. not all of the pre-replacement traffic can be found after replacement. High-speed, grade-separated freeways through downtowns push the "travelsheds" way out into the countryside. Without the freeway, some travelers will choose destinations within the existing urban fabric. Another reason why traffic disappears is that circuitous travel is reduced. With a high speed link in a network, some drivers will choose to save a minute or two by driving farther to use the higher-speed link rather than taking a more direct route on lower-speed streets. Some drivers also will take exits that are beyond their true destination, if it seems slightly faster than exiting earlier and taking a more direct route.

The split between the three categories – traffic on the replacement street, diversion to other streets, and disappearing traffic – will vary from case to case. It will depend on the characteristics of the replacement facilities and the competing alternatives. However, the Skyway is currently carrying a relatively low traffic volume for a freeway with 41,500 vehicles per day. If necessary, all of its traffic could be carried by a single surface street. For example, in the case of the Central Freeway, which carried 93,100 vehicles, the replacement facility Octavia Boulevard carries about 45,000 vehicles per day.

Premature Rejection of the Skyway Removal in the Southtowns Connector EIS

NYSDOT's Southtowns Connector Environmental Impact Study includes a short description of a Skyway alternative analysis (Scenario 8). Unfortunately, no details of the design assumptions or analysis are provided in the report. The EIS does include some information on the projected traffic change on some streets in the Skyway alternative analysis. However, the projections show the implausible effect of more traffic being diverted onto Ohio Street and I-190 than could be removed from US 5 (see Figure 6). The model forecasts a reduction of 27,000 vehicles per day on a new at-grade bridge but then shows an increase of 35,000 vehicles per day on the alternative routes, I-190 and Ohio Street. The EIS does not explain where the additional 8,000 vehicles would be coming from.

It is likely that the EIS assumes that the Skyway is replaced with only a two-lane at-grade bridge, given the volume is less then half the original Skyway volume. If the analysis is conducted assuming a four lane at-grade bridge, there would likely be very little diversion to other streets. The EIS concludes that, "significant congestion issues on both local road and highway segments would result from implementing such an action," and eliminates the Skyway alternative analysis from further consideration.

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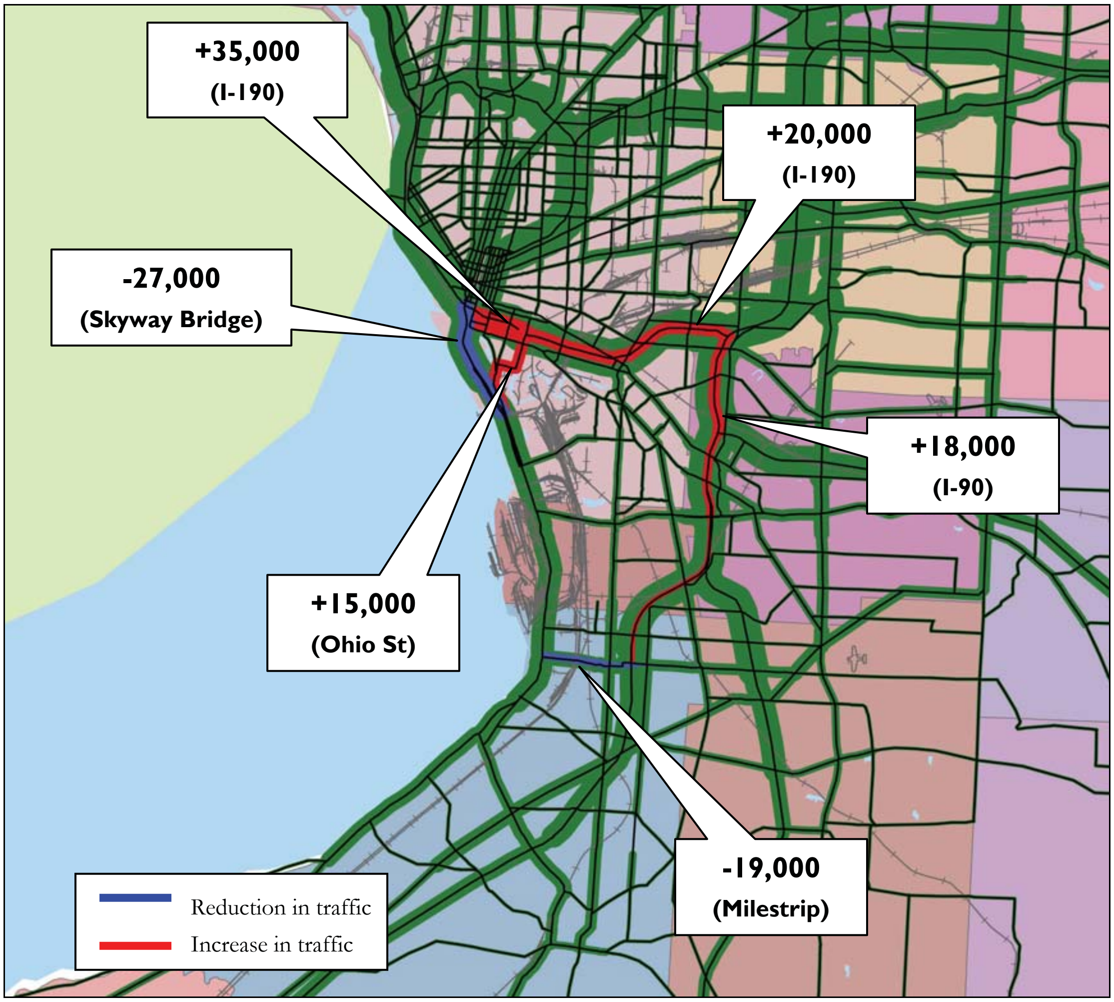
[3] "The inability to gain easy access to the Outer Harbor area is one of the major issues that have stymied development and redevelopment efforts in this area". City of Buffalo, Office of Strategic Planning. Local Waterfront Revitalization Program (draft dated May 6, 2005). Retrieved 30 Nov. 2006 <http://www.ci.buffalo.ny.us/files/1_2_1/Brownfield_Opportunity_Area_Project/LWRP.

[4] San Francisco Department of Traffic and Parking, Octavia Boulevard Operation, Six Month Report, March 2, 2006. !

Figure 6: Traffic Volume Changes Reported in the NYSDOT Southtowns Connector Environmental Impact Statement.[5]



If the new surface street and bridge were designed with two moving lanes in each direction, there would be adequate capacity to handle the traffic with limited diversion to other routes. The analysis attempted in the EIS should be conducted again with more realistic and accurate design assumptions, which reflect the consensus of the local officials and vision of the community, in terms of the number of lanes and capacity of the new at-grade bridge and the design of Fuhrmann Boulevard.

In order to properly model the urban boulevard alternative, it may be necessary to add detail to the model's street grid. Many regional transportation models only consider major roadways and are missing local streets that support large volumes of traffic in the older core areas of cities. The omission of these important streets can lead to badly distorted model forecasts. In addition, with the recent removal of tolls on I-190, there will be some diversion of trips to I-190 anyway. Both no build and build analyses should be conducted with data that reflects these new conditions. Without making these changes in their methodology and data collection, the NYSDOT will fail to provide residents with realistic and beneficial alternatives.

Some traffic increases on the region's freeway system should not pose a problem for regional traffic. Many other U.S. regions have similar urban freeway networks as the Buffalo region. However, the Buffalo region is notable for the relatively low utilization of its urban freeways as compared with other major US metropolitan

[5] Report can be found at the NYSDOT Website: https://www.nysdot.gov/portal/page/portal/regional-offices/region5/projects/southtowns-connector/southtowns-connector

areas. Figure 7 on the following page compares the amount of traffic on freeways, showing Buffalo with the second lowest amount of traffic on their freeways (per lane mile) of all U.S. metropolitan areas with at least 1 million residents.[6]

The Buffalo region's relatively low levels of traffic congestion are also shown by the relatively short commute times of Buffalo workers. The 2000 US Census reported that the mean commute time for workers commuting to Buffalo is 22.1 minutes, compared to the mean commute time for New York State as a whole of 33.0 minutes.

The Effect of I-190 Tolls on Route 5

Traffic on the Skyway prior to the removal of tolls on I-190 was about 41,500 vehicles per day. (Post toll-removal traffic counts are not yet available.) Traffic volumes on Route 5 decrease sharply to the south. The traffic volume declines to 35,000 vehicles per day within 2 miles of the Skyway Bridge, a decrease of 6,500 vehicles. About 4 miles further south at the Camp Road/Route 20 intersection, traffic disperses and only 22,000 continue on Lakeshore Drive.

Generally, roads have balanced traffic volumes in each direction through the course of a day because users make round trips in both directions. The Skyway traffic does not follow this pattern. There have been approximately 2,000 additional vehicles per day traveling northbound than southbound. This is balanced by traffic on I-90, where there are approximately 2,000 additional vehicles per day traveling southbound as compared to northbound, illustrated in Figure 5. This is a rational result of the tolls which were collected only in one direction. Some users chose to use I-190/I-90 in the free (outbound) direction, but to use other routes, including the Skyway, to avoid the toll for their inbound trips.

Tolls generally suppress traffic volumes because some potential travelers will choose other routes, other destinations, or make a given trip less frequently. In quantifying these effects, modelers focus on "values of time." Values of time reflect how individuals trade off time and cost. For example, if an individual has a value of time of $6.00 per hour, they would need to save 10 minutes (1/6 of an hour) to justify a toll of $1.00 (1/6 of the hourly value of time).

The value of time varies by income, with higher income people generally willing to pay a higher price for time-savings than lower income people. The U.S. Department of Transportation recommends that 50% of the prevailing wage rate be used.[7] The U.S. Bureau of Labor Statistics reports that in 2005, the median wage rate in the Buffalo-Niagara Falls Metropolitan Statistical Area was $13.91 per hour.[8] Therefore, an appropriate average value of time for the region is $6.95 per hour.

The recently removed Thruway tolls on I-190 of $0.75 translate into times of 6.5 minutes. Therefore, the average wage earner would choose the toll road if they would save at least 6.5 minutes compared to the free route. It follows that the presence of the tolls would have caused diversion from the Thruway to other routes including Route 5 and the Skyway for any trips for which the value of the time saved is less than the toll.

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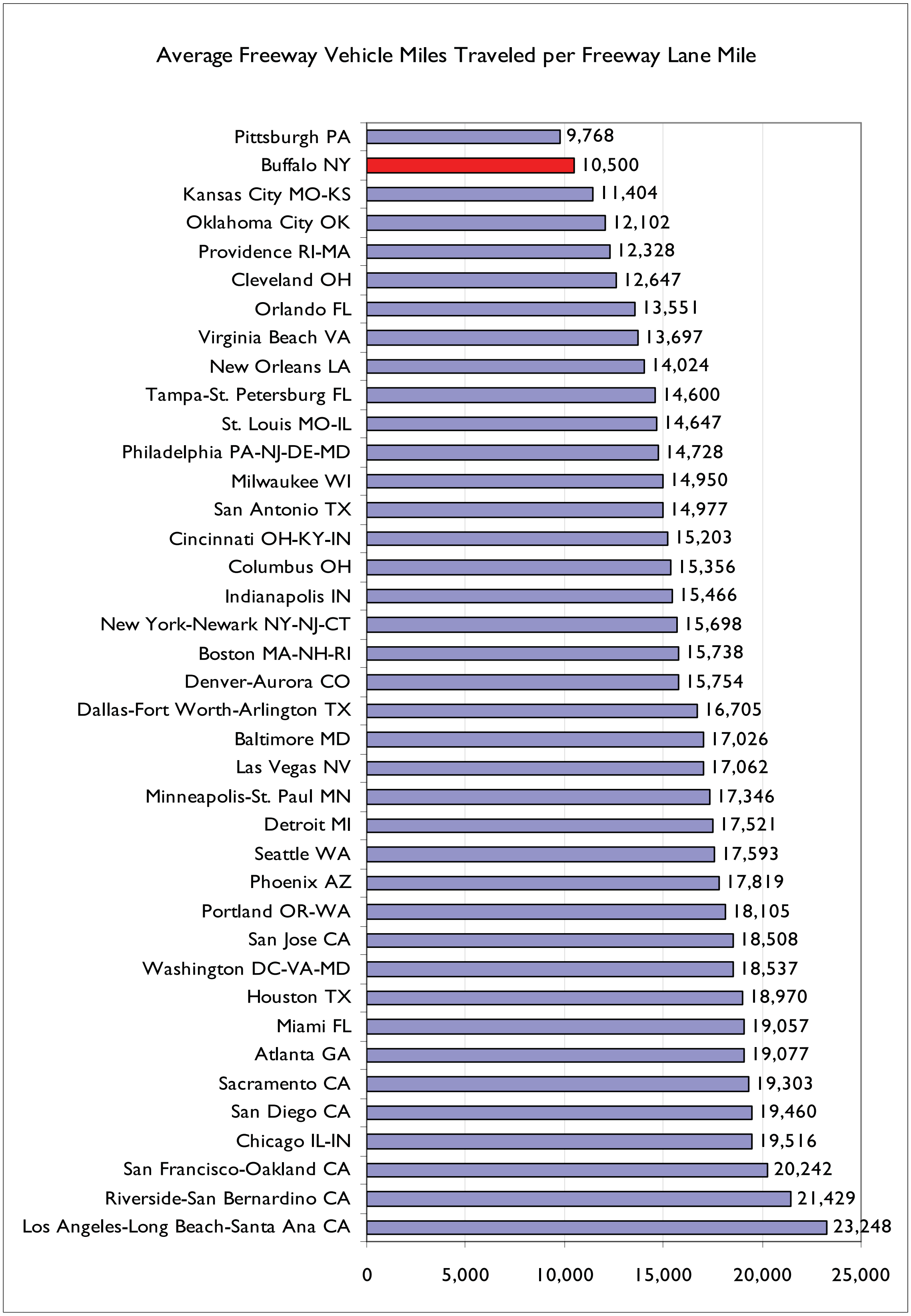
[6] Source: Texas Transportation Institute, Urban Mobility Study, 2003 data (most recent available) for regions with at least 1 million population. http://mobility.tamu.edu/ums/congestion_data/tables/complete_data.xls

[7] Kruesi, Frank E, Assistant Secretary for Transportation Policy, U.S. Department of Transportation. Memorandum re "Departmental Guidance of Valuation of Travel Time in Economic Analyses", April 9, 1997.

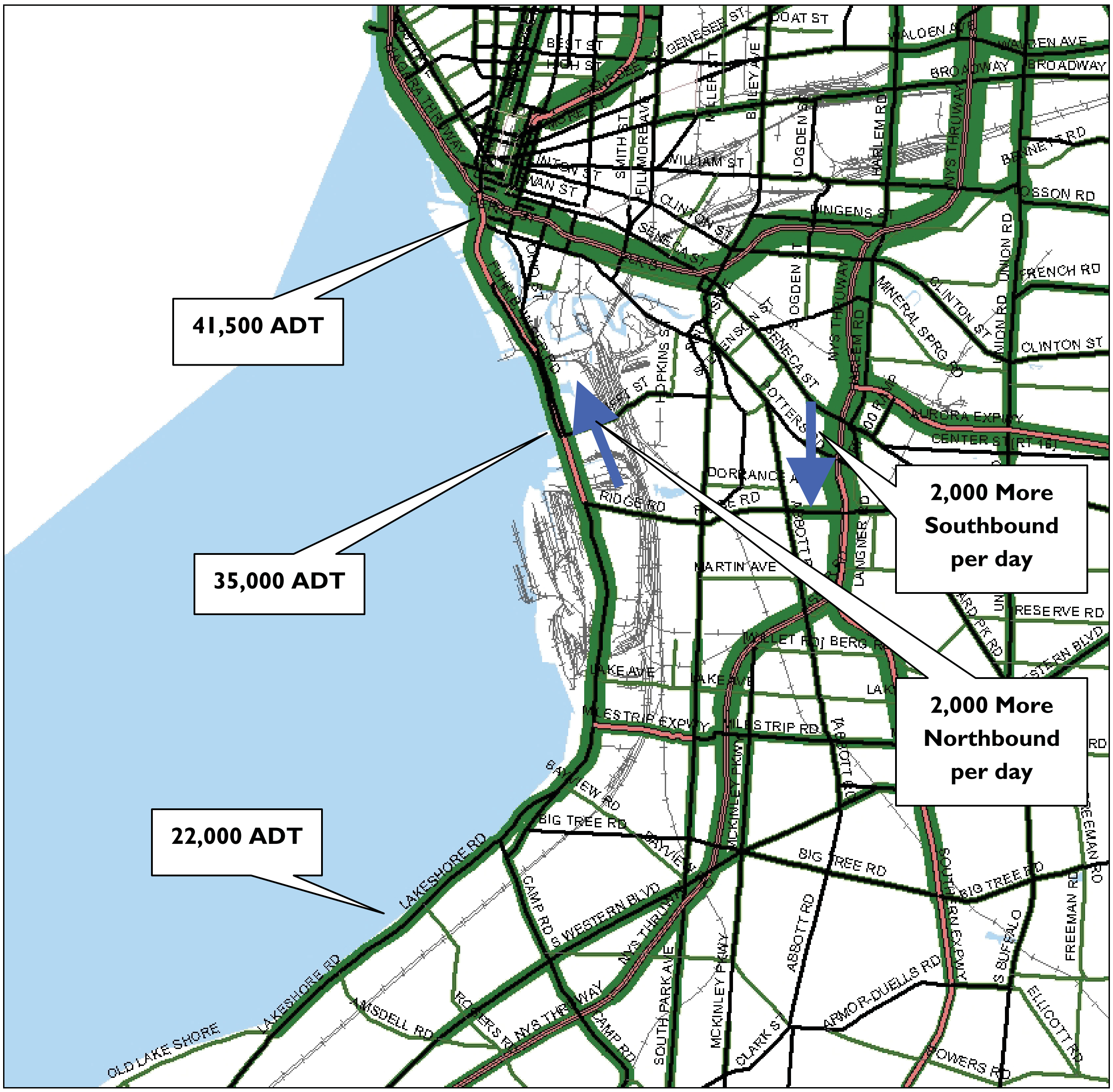
[8] http://stats.bls.gov/oes/current/oes_15380.htm#b00-0000

Figure 7: Average Use of Freeways in the U.S. Metropolitan Areas with 1 Million People or More



The data indicate that the toll effect was particularly strong during peak commuting hours and that the effect of the tolls raised traffic volumes on Route 5 by at least 600 cars during the morning peak hour and 2,000 over the course of the entire day. Already, with the recent closure of the toll-booths, traffic volumes are apparently significantly higher on I-190 entering the city during peak hours.[9] However, the toll barriers themselves currently are creating some congestion. When the barriers are removed, traffic patterns will change substantially, with more on I-190 and less on Route 5.

Figure 5: Traffic Volumes on Route 5 and Traffic Imbalance on Route 5 and I-190 during the previous Toll collection system.



[9] Buffalo News, November 4, 2006.

Conclusion

There is a strong transportation planning rationale to replace the Skyway with a surface street. An urban boulevard would more effectively connect the Outer Harbor and the Southtowns to downtown Buffalo. Increasing access is essential for the successful redevelopment of Buffalo's waterfront. Spared the expense of continued maintenance and reconstruction of the elevated highway structure, Buffalo can fulfill other transportation priorities.

Experience in other cities has shown that traffic volumes comparable to the existing Skyway volume can be accommodated on surface streets. Examples from Milwaukee and San Francisco have shown that traffic is handled either by the replacement street and other routes or it disappears. And, given the recent elimination of the I-190 tolls, the traffic volume that must be accommodated is likely to be lower than existing traffic data suggests.

Interconnected urban boulevards not only handle traffic volumes more efficiently, they also add value to adjacent land and cost significantly less to construct and maintain. Conversion of Route 5 and the Skyway Bridge into a surface street will also free up a large amount of acreage for private and public development. Parcels should be oriented immediately adjacent to the right of way, with buildings facing the street and sidewalks accommodating pedestrian travel. There should be as many at-grade intersections as possible to connect the boulevard with the existing street network. These particular design features of urban boulevards are key to their success and should be incorporated in the NYSDOT plans.

It is important that a realistic analysis of the traffic impacts be done that incorporates refinements in the replacement alternative and the transportation model. This work should be a basis for a long-term transportation plan for this area that balances mobility needs with economic development goals and the community vision for the Outer Harbor waterfront.

Buffalo possesses a great opportunity to correct a mistake made in the post World War II era. Removing the Skyway and replacing it with surface streets connected to the city's street grid can help Buffalo renew its waterfront and add value to its tax base. The State of New York should allow Buffalo to seize this opportunity.

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EDUCATION:

Master of Science in Engineering Sciences, Dartmouth College, Hanover, NH, 1982
Bachelor of Science in Mathematics, Worcester Polytechnic Institute, Worcester, MA, 1977

PROFESSIONAL EXPERIENCE:

Norm Marshall helped found Smart Mobility, Inc. in 2001 and is its President. Prior to this, he was at Resource Systems Group, Inc. for 14 years. He specializes in analyzing the relationships between the built environment and travel behavior, and doing planning that coordinates transportation with land use and community needs.
Regional Land Use/Transportation Scenario Planning

Burlington, Vermont – Leading team that is developing a new transportation plan for the City based, in part, on an extensive public involvement process.

Chicago Metropolis Plan and Chicago Metropolis Freight Plan (6-county region)— developed alternative transportation scenarios, made enhancements in the regional travel demand model, and used the enhanced model to evaluate alternative scenarios. Developed multi-class assignment model and used it to analyze freight alternatives including congestion pricing and other peak shifting strategies. Chicago Metropolis 2020 was awarded the Daniel Burnham Award for regional planning in 2004 by the American Planning Association, based in part on this work.

Envision Central Texas Vision (5-countyregion)—implemented many enhancements in regional model including multiple time periods, feedback from congestion to trip distribution and mode choice, new life style trip production rates, auto availability model sensitive to urban design variables, non-motorized trip model sensitive to urban design variables, and mode choice model sensitive to urban design variables and with higher values of time (more accurate for "choice" riders).

Mid-Ohio Regional Planning Commission Regional Growth Strategy (7-county Columbus region)—developed alternative future land use scenarios and calculated performance measures for use in a large public regional visioning project.

Baltimore Vision 2030—working with the Baltimore Metropolitan Council and the Baltimore Regional Partnership, increased regional travel demand model's sensitivity to land use and transportation infrastructure. Enhanced model was used to test alternative land use and transportation scenarios.

Transit Planning

Capital Metropolitan Transportation Authority (Austin, TX) Transit Vision – analyzed the regional effects of implementing the transit vision in concert with an aggressive transit-oriented development plan developed by Calthorpe Associates. Transit vision includes commuter rail and BRT.

Bus Rapid Transit for Northern Virginia HOT Lanes (Breakthrough Technologies, Inc and Environmental Defense.) – analyzing alternative Bus Rapid Transit (BRT) strategies for proposed privately-developing High Occupancy Toll lanes on I-95 and I-495 (Capital Beltway).

Central Ohio Transportation Authority (Columbus) – analyzed the regional effects of implementing a rail vision plan on transit-oriented development potential and possible regional benefits that would result.

Essex (VT) Commuter Rail Environmental Assessment (Vermont Agency of Transportation and Chittenden County Metropolitan Planning Organization)—estimated transit ridership for commuter rail and enhanced bus scenarios, as well as traffic volumes.

Georgia Intercity Rail Plan (Georgia DOT)—developed statewide travel demand model for the Georgia Department of Transportation including auto, air, bus and rail modes. Work included estimating travel demand and mode split models, and building the Departments ARC/INFO database for a model running with a GIS user interface.

Roadway Corridor Planning and Air Quality Analysis

State Routes 5 & 92 Scoping Phase (NYSDOT) —evaluated TSM, TDM, transit and highway widening alternatives for the New York State Department of Transportation using local and national data, and a linkage between a regional network model and a detailed subarea CORSIM model.

Twin Cities Minnesota Area and Corridor Studies (MinnDOT)—improved regional demand model to better match observed traffic volumes, particularly in suburban growth areas. Applied enhanced model in a series of subarea and corridor studies.

Seacoast Metropolitan Planning Organization (New Hampshire) — led team that developed integrated transportation, land use, and applied models in corridor studies and in regional air quality conformity modeling.

Developing Regional Transportation Models

Pease Area Transportation and Air Quality Planning (New Hampshire DOT)—developed an integrated land use allocation, transportation, and air quality model for a three-county New Hampshire and Maine seacoast region that covers two New Hampshire MPOs, the Seacoast MPO and the Salem-Plaistow MPO.

Syracuse Intermodal Model (Syracuse Metropolitan Transportation Council)—developed custom trip generation, trip distribution, and mode split models for the Syracuse Metropolitan Transportation Council. All of the new models were developed on a person-trip basis, with the trip distribution model and mode split models based on one estimated logit model formulation.

Portland Area Comprehensive Travel Study (Portland Area Comprehensive Transportation Study)—Travel Demand Model Upgrade—enhanced the Portland Maine regional model (TRIPS software). Estimated person-based trip generation and distribution, and a mode split model including drive alone, shared ride, bus, and walk/bike modes.

Chittenden County ISTEA Planning (Chittenden County Metropolitan Planning Organization)—developed a land use allocation model and a set of performance measures for Chittenden County (Burlington) Vermont for use in transportation planning studies required by the Intermodal Surface Transportation Efficiency Act (ISTEA).

Research

Obesity and the Built Environment (National Institutes of Health and Robert Wood Johnson Foundation) – Working with the Dartmouth Medical School to study the influence of local land use on middle school students in Vermont and New Hampshire, with a focus on physical activity and obesity.

The Future of Transportation Modeling (New Jersey DOT)—Member of Advisory Board on project for State of New Jersey researching trends and directions, and making recommendations for future practice.

Trip Generation Characteristics of Multi-Use Development (Florida DOT)—estimated internal vehicle trips, internal pedestrian trips, and trip-making characteristics of residents at large multi-use developments in Fort Lauderdale, Florida.

Improved Transportation Models for the Future—assisted Sandia National Laboratories in developing a prototype model of the future linking ARC/INFO to the EMME/2 Albuquerque model and adding a land use allocation model and auto ownership model including alternative vehicle types.

Critiques

C-470 (Denver region) – Reviewed express toll lane proposal for Douglas County, Colorado and prepared reports on operations, safety, finances, and alternatives.

Intercounty Connector (Maryland) – Reviewed proposed *toll road and modeled* alternatives with different combinations of roadway capacity, transit capacity and pricing.

Foothills South Toll Road (Orange County, CA) – Reviewed modeling of proposed toll road.

I-93 Widening (New Hampshire) – Reviewed Environment Impact Statement and modeling, with a particular focus on induced travel and secondary impacts.

Stillwater Bridge – Participated in 4-person expert panel assembled by Minnesota DOT to review modeling of proposed replacement bridge in Stillwater, with special attention to land use, induced travel, pricing, and transit use.

Ohio River Bridges Project (Louisville region) – Reviewed Environmental Impact Statement for proposed new freeway/Ohio River bridge.

Indiana I-69 – Reviewed model analyses from Indiana statewide travel demand model of proposed new Interstate highway and performed sensitivity analyses for its benefit cost analysis.

Atlanta, Georgia – Critiqued conformity analyses and regional long-term transportation plan.

Daniel Island (Charleston, South Carolina) – Reviewed Draft Environmental Impact Statement for large proposed Port expansion (the "Global Gateway") for an environmental coalition.

MEMBERSHIPS/AFFILIATIONS

Associate Member, Institute of Transportation Engineers
Individual Affiliate, Transportation Research Board
Member, American Planning Association
Member, Congress for New Urbanism
Technical Advisory Committee Member and past Board Member, Vital Communities (VT/NH)

PUBLICATIONS AND PRESENTATIONS (partial list)

Sketch Transit Modeling Based on 2000 Census Data with Brian Grady. Presented at the Annual Meeting of the Transportation Research Board, Washington DC, January 2006 and accepted for publication in the *Transportation Research Record*.

Travel Demand Modeling for Regional Visioning and Scenario Analysis with Brian Grady, *Transportation Research Record. Transportation Research Board, Journal of the Transportation Research Board, No. 1921, Travel Demand 2005*, 2005.

Chicago Metropolis 2020: the Business Community Develops an Integrated Land Use/Transportation Plan with Brian Grady, Frank Beal and John Fregonese, presented at the Transportation Research Board's Conference on Planning Applications, Baton Rouge LA, April 2003.

Chicago Metropolis 2020: the Business Community Develops an Integrated Land Use/Transportation Plan with Lucinda Gibson, P.E., Frank Beal and John Fregonese, presented at the Institute of Transportation Engineers Technical Conference on Transportation's Role in Successful Communities, Fort Lauderdale FL, March 2003.

Evidence of Induced Travel with Bill Cowart, presented in association with the Ninth Session of the Commission on Sustainable Development, United Nations, New York City, April 2001.

Induced Demand at the Metropolitan Level – Regulatory Disputes in Conformity Determinations and Environmental Impact Statement Approvals, Transportation Research Forum, Annapolis MD, November 2000.

Evidence of Induced Demand in the Texas Transportation Institute's Urban Roadway Congestion Study Data Set, *Transportation Research Board Annual Meeting*, Washington DC: January 2000.

Subarea Modeling with a Regional Model and CORSIM" with K. Kaliski, presented at *Seventh National Transportation Research Board Conference on the Application of Transportation Planning Methods, Boston MA, May 1999.*

New Distribution and Mode Choice Models for Chicago with K. Ballard, *Transportation Research Board Annual Meeting*, Washington DC: January 1998.

"Land Use Allocation Modeling in Uni-Centric and Multi-Centric Regions" with S. Lawe, *Transportation Research Board Annual Meeting,* Washington DC: January 1996.

Multimodal Statewide Travel Demand Modeling Within a GIS with S. Lawe, Transportation Research Board Annual Meeting, Washington DC: January 1996.

Land Use, Transportation, and Air Quality Models Linked With ARC/INFO. with C. Hanley, C. Blewitt, and M. Lewis, Urban and Regional Information Systems Association (URISA) Annual Conference,: San Antonio, TX, July 1995.

Forecasting Land Use Changes for Transportation Alternatives, with S. Lawe, Fifth National Conference on the Application of Transportation Planning Methods (Transportation Research Board),: Seattle WA, April 1995.

Integrated Transportation, Land Use, and Air Quality Modeling Environment with C. Hanley and M. Lewis Fifth National Conference on the Application of Transportation Planning Methods (Transportation Research Board), Seattle WA, April 1995.

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EDUCATION:

Master of Science in Engineering Sciences, Dartmouth College, Hanover, NH, 1988
Bachelor of Science in Civil Engineering, University of Vermont, Burlington, VT, 1983

PROFESSIONAL EXPERIENCE:

SMART MOBILITY, INC, Norwich, VT
VICE PRESIDENT
November 1, 2001 – Present

Manages and contributes to a variety of projects involving conceptual traffic engineering design, multimodal transportation planning, and applying principles of smart growth and new urbanism. Project focus areas include conceptual design of sustainable transportation solutions, regional transportation infrastructure planning and analysis, review of projects in the NEPA process and development of alternative plans for municipalities or concerned citizen groups. Project work includes developing alternative conceptual designs for future land use/transportation scenarios at a local or regional scale; transportation improvement cost analysis; conceptual design and analysis of transportation and transit facilities, and impact assessment for transportation projects. Current clients include non-profit organizations, planning agencies and municipalities. Specific projects include:

Two Lane Plan for PA Route 41—Prepared conceptual plan alternative to a Four lane limited access widening proposed by Pennsylvania DOT for PA Route 41 through Chester County, PA. Used RODEL for roundabout analysis and design, and VISSIM for developing corridor-wide measures and informational display. Sub-contracted with Barry Crown of Rodel Software, and Faber Maunsell, UK Distributors of VISSIM. Plan is currently under review by PennDOT for consideration as an alternative.

Alternative Plan for US 202 Section 700—Prepared alternative plan of traffic operational improvements and connector streets as an alternative to a proposed 10 mile expressway along US 202 through Bucks County, Pennsylvania, due to concerns about the expressway's primary and secondary impacts.

Transportation Plan for Montpelier, Vermont—Comprehensive, multimodal transportation plan for the City of Montpelier, Vermont to be integrated into their updated municipal plan. Planning process included public visioning workshop, a review of all modes of transportation, travel demand management and parking options, and options to increase street connectivity. In collaboration with ORW, Landscape Architects.

Chicago Metropolis 2020 Plan for Growth and Transportation-Contributed to this APA Burnham Award-winning project to explore alternative scenarios for growth and transportation investment and management for the Chicago Region. Developed alternative transportation investment strategies and budgets, and prepared modeling input files to analyze these scenarios with an advanced regional TransCAD model.

Prairie Crossing Boulevard Plan, Grayslake, Illinois-Developed context sensitive integrated transportation and land use alternative plan for an abandoned Tollway right-of-way through a new urbanist development in Grayslake, Illinois. Integrated traffic and transportation design into community street network and land use patterns. Plan features landscaped boulevards, roundabouts, and improved street connectivity in the area.

Monadnock Traffic Calming Foundation—Developed conceptual traffic calming plan and design criteria for a NHDOT traffic calming project on Route 101through the center of Dublin, New Hampshire.

Dresden School Transportation Committee—Conducted study on the Feasibility of Queue Jump Lane for the Ledyard Bridge Approach in Norwich, Vermont. Reviewed options and obstacles for establishing a bus-only during morning peak hours for buses, with the goal of reducing bus travel time and encouraging school bus and public transit use between Norwich, Vermont and Hanover, New Hampshire.

Barnard Villages Traffic and Growth Management Plan—Developed a plan for Barnard, Vermont's two village areas, including intersection safety, pedestrian circulation, traffic calming, establishing village identity, re-designing lakefront parking on Silver Lake, and exploring opportunities for infill development.

NEPA Document Reviews-Reviewed and prepared comments on several EIS and EA documents for community groups and other stakeholders for a variety of projects, including the I-93 Salem to Manchester, NH Widening; the Ohio River Bridges in Louisville, Kentucky; US 202 Section 100 in Chester County, PA.

TWO RIVERS-OTTAUQUECHEE REGIONAL COMMISSION, Woodstock, VT– *www.trorc.org*
SENIOR TRANSPORTATION PLANNER
October 1994 – October 2001

Managed regional transportation planning program for a rural 27-town region in central Vermont. Prepared the Regional Transportation Plan, and prepared a regional Transportation Improvement Program for incorporation into the Vermont Statewide Transportation Improvement program. Implemented extensive public involvement program for transportation planning and project development; assisted communities in planning, conceptual design, and cost analysis of transportation improvements; conducted Scenic Byway and Bicycle/pedestrian planning and design studies; assisted municipalities in addressing traffic circulation, pedestrian transportation and parking issues in their downtown area plans. Specific projects include:

RESOURCE SYSTEMS GROUP, White River Junction VT
ENGINEER/ANALYST
November 1988 - October 1994

Conducted and prepared numerous local and regional transportation planning, traffic impact assessment and feasibility studies at a transportation consulting firm. Duties included analyzing traffic data, preparing regional transportation plans, conducting transportation improvement feasibility studies, and traffic impact evaluations.

JASON M. CORTELL AND ASSOCIATES, Waltham, MA
ENVIRONMENTAL ENGINEER
September 1984 to August 1986

Worked on a variety of environmental studies including NEPA documents, impact analysis for developments, hazardous material site assessments, water quality impact assessments and other tasks at a full service environmental consulting firm.

PROFESSIONAL CERTIFICATIONS AND MEMBERSHIPS

Professional Engineer – P.E., Vermont Board of Professional Engineering, License #6133
Member, Institute of Transportation Engineers (ITE)
Member, Congress for the New Urbanism, Transportation Planning Committee
Member, Board of Directors, CNU New England Chapter of CNU
Member, ITE/CNU Design Standards Task Force

PUBLICATIONS

Context Sensitive Design Approach for the Route 41 Corridor, Gibson, Lucinda E., and Dee Durham. Presented the Historic Roads National Conference in Portland, OR. Described multi-faceted approach including research, public involvement and education, used to develop a context sensitive plan for improvements to PA Route 41, an NHS route through scenic rural landscapes and Amish farms. April, 2004.

Chicago Metropolis 2020: The Business Community Develops an Integrated Land Use/Transportation Plan, Gibson, Lucinda E., Frank Beal, John Fregonese, Norman Marshall. Presented at the ITE 2003 Technical Conference, *Transportation's Role in Successful Communities* Presented in Fort Lauderdale, FL, 2003.

Functional Classification for Multimodal Planning, Strate, Harry E., Elizabeth Humstone, Susan McMahon, Lucy Gibson and Bruce D. Bender, Transportation Research Record #1606, Transportation Planning, Programming, and Land Use, National Academy Press, Washington DC, 1997.

SPEAKING ENGAGEMENTS (Partial List)

Emerging Transportation Planning Techniques for Smart Growth Planning. Presented at the Smart Growth Network annual conference in Burlington, VT, September, 2003.

Success Stories and How-To's, Vermont Bicycle and Pedestrian Coalition Annual Meeting, Randolph, VT, April, 2002.

Transportation Concepts for Smart Growth Planning, Chicago Metropolis 2020 Steering Committee, Chicago, IL, January 2002.

How Engineers Think, Vermont Historic Preservation Annual Conference, Manchester, VT, June, 1999.
Traffic and Transportation Trends and Considerations, US Route 4 Forum, Woodstock, VT, April 1998.