

South Western Region ITS Strategic Plan

Appendices

prepared for

South Western Regional Planning Agency

prepared by

Cambridge Systematics, Inc.

with

**IBI Group
Howard/Stein-Hudson Associates, Inc.**

SWRPA

South Western Region ITS Strategic Plan

Appendices

prepared for

South Western Regional Planning Agency
888 Washington Boulevard, 3rd Floor
Stamford, CT 06901

prepared by

Cambridge Systematics, Inc.
100 CambridgePark Drive, Suite 400
Cambridge, MA 02140

Howard/Stein-Hudson Associates, Inc.
517 W 35th Street, 7th Floor
New York, NY 10001

IBI Group
77 Franklin Street, 7th Floor
Boston, MA 02110

date

July 2009

Table of Contents

Appendix A.....	Stakeholders
Appendix B	Planning Factors
Appendix C.....	ITS Inventory
Appendix D.....	Transportation Needs
Appendix E.....	Initial Screening Matrix
Appendix F.....	Market Packages and Goals Matrix
Appendix G.....	Matrix Summary
Appendix H.....	Preliminary Budget Estimates
Appendix I.....	Summary of Public Involvement

This document was prepared in cooperation with the U.S. Department of Transportation, Federal Highway Administration and the Connecticut Department of Transportation. The opinions, findings, and conclusions expressed in this publication are those of the author and do not necessarily reflect the official views or policies of the South Western Regional Planning Agency, Connecticut Department of Transportation or the U.S. Department of Transportation.

Appendix A

Stakeholder	Responsibilities
South Western Regional Planning Agency	Transportation Planning Agency for the South Western Region in Connecticut. Responsible for the development of the Regional ITS Plan. Develops the Region's Long Range Transportation Plan (LRTP) and Transportation Improvement Plan (TIP) as staff to the South Western Region Metropolitan Planning Organization.
South Western Region Metropolitan Planning Organization	Federally designated metropolitan planning organization serving the municipalities of Darien, Greenwich, New Canaan, Norwalk, Stamford, Weston, Westport and Wilton.
Connecticut Department of Transportation	State transportation agency responsible for operations and maintenance of state owned highway, rail, bus, and other transit modes.
Federal Highway Administration	Federal agency responsible for administering the funds and overseeing the operations of the interstate highway system in the country.
Federal Transit Administration	Federal agency responsible for overseeing the transit related funding and operations in the country.
United States Coast Guard	Federal agency responsible for safety and security on Long Island Sound. Jurisdiction extends to waterways, recreational and commercial vessels and some landside infrastructure.
City of Norwalk	Second largest municipality in the South Western Region.
City of Stamford	Largest municipality in the South Western Region
Town of Darien	Municipality in the South Western Region.
Town of Greenwich	Municipality in the South Western Region
Town of New Canaan	Municipality in the South Western Region.
Town of Weston	Municipality in the South Western Region. .
Town of Westport	Municipality in the South Western Region.
Town of Wilton	Municipality in the South Western Region.
Connecticut Transit –Stamford Division	Provider of fixed route (local and express) bus service in Stamford. Responsible for the operations and maintenance of buses.
Norwalk Transit District	Provider of demand responsive and fixed route (local and regional) bus service in Norwalk. Provides contractual transit services to Westport and Stamford.

Stakeholder	Responsibilities
	Responsible for operations and maintenance of buses.
Metro North Commuter Railroad	Transit agency responsible for operating commuter rail in the state.
MetroPool	A regional non-profit ridesharing agency that manages transportation demand management programs in the South Western Region (CT) and the Lower Hudson River Valley (NY).
CSX Transportation	Provides interstate freight transportation services across 22 states including CT.
Providence and Worcester Railroad	Regional railroad company that provides freight transportation services to four states including CT.
Motor Transport Association of Connecticut	Association representing commercial motor vehicle operators in CT.
Connecticut Department of Emergency Management and Homeland Security	Responsible for oversight of emergency operations and homeland security in the state
Connecticut Department of Environmental Protection	Responsible to conserve and improve natural resources and the environment on order to protect public health, safety, and welfare
Connecticut Department of Public Safety	Responsible for managing the public safety agencies such as State Police, and Emergency services
Fairfield County Hazardous Materials Team	Responsible for responding to hazardous materials incidents in Fairfield County
SWC-MED	Responsible for dispatching emergency medical services in the South Western Region and adjacent planning regions.
Local emergency responders – police, fire, EMS, emergency management directors	Respond and manage response to emergency situations. Roles include dispatch, communications management and coordination.
Coastal CT Visitors and Convention Bureau	Tourist bureau serving the South Western and Grater Bridgeport planning regions.
Maritime Aquarium at Norwalk	Tourist attraction in the South Western Region
Stepping Stones Children's Museum	Tourist attraction in the South Western Region
UBS Corporation	Major employer in Stamford.
Merritt 7 Corporate Park	Major employment location.
General Electric/GE Capital and affiliated	Major employer in Stamford and Norwalk.

Stamford Town Center	Retail destination in Stamford.
The Business Council of Fairfield County	Business council serving Fairfield County. Provides business development, legislative advocacy, networking and selected services to member business organizations.
Bridgeport Regional Business Council	Regional business council that serves as the chamber of commerce for Bridgeport, Stratford and Trumbull. Provides business development, legislative advocacy, networking and selected services to member business organizations.
Norwalk Chamber of Commerce	Chamber of commerce serving Norwalk, Darien, New Canaan, Weston, Westport and Wilton. Provides business development, legislative advocacy, networking and selected services to member business organizations.
Stamford Chamber of Commerce	Chamber of commerce serving Stamford. Provides business development, legislative advocacy, networking and selected services to member business organizations.
Darien Chamber of Commerce	Chamber of commerce serving Darien. Provides business development, legislative advocacy, networking and selected services to member business organizations.
Greenwich Chamber of Commerce	Chamber of commerce serving Greenwich. Provides business development, legislative advocacy, networking and selected services to member business organizations.
Westport-Weston Chamber of Commerce	Chamber of commerce that serving Westport and Weston. Provides business development, legislative advocacy, networking and selected services to member business organizations.
Greater Bridgeport Regional Planning Agency	Regional planning agency serving the municipalities of Bridgeport, Easton, Fairfield, Monroe, Stratford and Trumbull. Agency staffs the Greater Bridgeport/Valley Regional Metropolitan Planning Organization.

Greater Bridgeport/Valley Region Metropolitan Planning Organization	Federally designated metropolitan planning organization serving the municipalities of Ansonia, Bridgeport, Derby, Easton, Fairfield, Monroe, Seymour, Shelton, Stratford and Trumbull.
Greater Bridgeport Transit District	Transit agency providing fixed route and para-transit services in Bridgeport, Fairfield, Stratford and Trumbull.
Housatonic Valley Council of Elected Officials	Regional planning agency serving the municipalities of Bethel, Bridgewater, Brookfield, Danbury, New Fairfield, Newtown, Redding, Ridgefield and Sherman. Council also serves as the federally designated metropolitan planning organization for its member municipalities.
Housatonic Area Rapid Transit	Transit agency operating fixed and demand response transit services in Bethel, Brookfield, Danbury, New Fairfield, Newtown, Redding and Ridgefield.
Milford Transit District	Transit agency that operates fixed route and commuter connection services in Milford.
South Central Regional Council of Governments	Regional planning agency serving Bethany, Branford, East Haven, Guilford, Hamden, Madison, Meriden, Milford, New Haven, North Branford, North Haven, Orange, Wallingford, West Haven and Woodbridge.
New York Metropolitan Transportation Council	Metropolitan planning organization serving New York City, Long Island, and the Lower Hudson River Valley.
Westchester Department of Transportation	County transportation agency.
Westchester Department of Planning	County land use and development planning agency.
New York State Department of Transportation	State transportation agency responsible for operations and maintenance of state-owned highway, rail, bus, and other transit modes.
TRANSCOM	A coalition of 16 transportation and public safety agencies in the New York-New Jersey-Connecticut metropolitan region responsible for the distribution of traffic and incident information and management of regional ITS programs
Rideworks	A regional non-profit ridesharing agency that manages transportation demand management programs in the New Haven, Waterbury and Shoreline East areas.

I-95 Corridor Coalition	An alliance of transportation agencies, toll authorities, and related organizations, including law enforcement, representing states and Canadian provinces served by I-95 that provides a forum for discussion of key transportation management and operations issues.
Port Authority of New York-New Jersey	A bi-state agency that is responsible for management and maintenance of the bridges, tunnels, bus terminals, airports, PATH and seaports that are critical to the region's trade and transportation capabilities.
Media	Organizations responsible for communicating information about current events, politics, weather conditions, traffic conditions and other items of interest to the general public.

Appendix B

SAFETEA-LU Mandated Planning Factors

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
2. Increase the safety of the transportation system for motorized and nonmotorized users;
3. Increase the security of the transportation system for motorized and nonmotorized users;
4. Increase the accessibility and mobility of people and for freight;
5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
7. Promote efficient system management and operation, and;
8. Emphasize the preservation of the existing transportation system.

Appendix C

Existing ITS Elements/Systems by Key Stakeholder	
Stakeholder	Existing Facility/System/Field Devices
Connecticut Department of Transportation	Newington Operations Center Bridgeport Operations Center Stamford Transportation Center Closed Circuit Television along I-95 Variable Message Signs along I-95 Highway Advisory Radio Signal Pre-emption CHAMP service Computerized Traffic Signal Systems along Route 1 E-Alert Service State-wide Incident Management Task Force Weigh-In-Motion (Greenwich) CVO Credentialing System ConnDOT Anti-Icing Equipment Statewide Crash Records Database ConnDOT Infrastructure Monitoring Equipment ConnDOT Maintenance District ConnDOT Maintenance Vehicles ConnDOT Work Zone Equipment ConnDOT Web Page
South Western Regional Planning Agency	Regional Incident Management Team
City of Stamford	Traffic Operations Center Computerized Traffic Signals in the City Closed Circuit Television Cameras (CCTV) Emergency Operations Center Signal Pre-emption Vehicle Detectors Public Works Public Works Vehicles City's Web Page Glenbrook Rail Station (branch) Springdale Rail Station (branch)
City of Norwalk	Traffic Signal Equipment Emergency Operations Center Public Works Public Works Vehicles City's Web Page South Norwalk Rail Station East Norwalk Rail Station Rowayton Rail Station Merritt 7 Park Rail Station (branch)
Town of Greenwich	Traffic Signal Equipment Emergency Operations Center Public Works Public Works Vehicles Town's Web Page Greenwich Rail Station Cos Cob Rail Station Old Greenwich Rail Station Riverside Rail Station
Municipal Rail Stations (Other)	Darien Rail Station

Existing ITS Elements/Systems by Key Stakeholder	
Stakeholder	Existing Facility/System/Field Devices
	Noroton Heights Rail Station New Canaan Rail Station (branch) Talmadge Hill Rail Station (branch) Westport Rail Station Greens Farms Rail Station Wilton Rail Station (branch) Cannondale Rail Station (branch)
Municipal Public Works (Other)	Public Works Public Works Vehicles
Municipal Fire and Emergency Responders	Municipal Fire and Emergency Departments/Apparatus Municipal and Regional Hazardous Materials Teams Municipal Emergency Operations Centers Regional Bomb Squad
Connecticut Transit	CT Transit Buses – Stamford Division CT Transit Operations Center CT Transit Web Page
Norwalk Transit District	Fixed Transit Route Buses Paratransit Route Buses Norwalk Transit District Web Page
Metro North Commuter Railroad	Rail Apparatus Ticket Vending Machines Stamford Transportation Center South Norwalk Railroad Station MNR Web Page
MetroPool	MetroPool Web Site E-mail Updates (Lane closings, construction updates) Web-Based Ridematching
Connecticut Department of Public Safety	Troop G Dispatch Unit Amber Alert System
Connecticut Department of Emergency Management and Homeland Security	Threat Advisory System DEMHS Web Site State Emergency Operations Center Region 1 Emergency Operations Center
Connecticut Department of Environmental Protection	Statewide Hazardous Materials Response Team DEP Web Site
TRANSCOM	Trips123

Appendix D

Document	Transportation Need
CMS 2020	Examine opportunities for improving transit connections between southwestern Connecticut and regional airports.
CMS 2020	Expand travel demand management programs in South Western CT.
CMS 2020	Improve the safety and operation of major arterial roads, such as Route 1, to reduce congestion and decrease accidents.
CMS 2020	Explore opportunities for increasing capacity on I-95 including use of congestion pricing and managed lanes.
CMS 2020	Support plans to widen Route 7 to a four-lane arterial with full roadside access from Wilton to Danbury. should be supported. Plans should incorporate ITS, where appropriate, to further improve the safety and operation of the roadway and to support use of priority signal treatments for transit.
CMS 2020	Develop and implement a corridor management plan for Route 7 that incorporates ITS, where appropriate, to improve the safety and operation of the roadway and the corridor's transit services.
CMS 2020	Evaluate the Merritt Parkway and its interchanges for safety and operational deficiencies and develop a corridor management plan – including improved emergency access, ITS and incident management – that addresses those deficiencies.
CMS 2020	Seek funding for a detailed operational study of I-95 between Stamford and Norwalk.
CMS 2020	Establish intermodal hubs with strong bicycle and pedestrian connectivity.
CMS 2020	Use Intelligent Transportation Systems (ITS) to improve the efficiency and operation of existing bus service in the corridor.
CMS 2020	Explore opportunities for establishing Bus Rapid Transit (BRT) service along Route 1 and inland transportation corridors that feed into Route 1.
CMS 2020	Implement a universal fare medium, such as a SmartCard.
CMS 2020	Evaluate expansion of commuter rail service and/or BRT services in the Route 7 corridor.
CMS 2020	Monitor the results of the Long Island Sound Waterborne Transportation Plan and other studies of potential interstate passenger ferry services, particularly those focusing on improved connections between southwestern Connecticut and Long Island, Lower Manhattan and LaGuardia Airport.
CMS 2020	Evaluate Weigh-In-Motion technology for use at the Greenwich weigh station.
CMS 2020	Increase truck parking and services at turnpike rest areas .
CMS 2020	Further examine need for a lower Hudson River rail crossing to improve mobility of freight between Port Authority of NY-NJ terminals, Connecticut and other of New England states.
CMS 2020	Conduct a rail capacity study similar to the Mid-Atlantic Rail Study to determine actual and available track capacity and to make recommendations for shared passenger/freight use of rail along the Northeast Corridor.
CMS 2020	Conduct a market analysis of the viability of Feeder Barge Service from intermodal ports in New Jersey to a deep water port in Connecticut.
CMS 2020	Expand parking and intermodal connections at key Metro North rail stations including South Norwalk, Noroton Heights, Stamford, Greenwich and Wilton.
CMS 2020	Engage Metro North and ConnDOT in discussions about intrastate rail pricing and seek opportunities to implement pilot programs to test market response to reduced intrastate fares.
CMS 2020	Improve intrastate commuter rail service.
CMS 2020	Make interstate rail service improvements including the development of a policy for fleet configuration, infrastructure upgrades and service upgrades
CMS 2020	Assist ConnDOT with efforts to expand existing and/or site new rest areas while minimizing impacts to communities.

Document	Transportation Need
CCTIA	Mitigate congestion on major arterial highways by increasing use of TDM strategies such as the marketing of the benefits of alternative modes of transportation and offering employee and employer incentives.
CCTIA	Mitigate congestion on Route 7 by implementing the recommendations of the Route 7 Travel Options Study.
CCTIA	Mitigate congestion on I-95 by increasing the number of trips by rail by ordering new rail cars immediately, developing additional storage and maintenance facilities as needed for a larger commuter rail fleet and improving rail station access.
CCTIA	Mitigate congestion on I-95 by providing alternatives to trucks for the movement of goods by creating a container barge feeder port(s) and service.
CCTIA	Mitigate congestion on I-95 by providing alternatives to trucks for the movement of goods by supporting and participating in activities advocating a new rail freight connection across the Hudson River at New York City.
TSB	Fund ConnDOT's statewide intelligent transportation systems initiative.
TSB	Implement intelligent transportation systems technology for transit operations as well as highways, e.g., automatic vehicle locator systems, electronic ticketing and traveler information services.
TSB	Increase availability of commuter information and services (e.g., parking availability, transit ticket purchases) on the Internet through consolidation and coordination of existing transportation web sites and improved user utility.
TSB	Develop a single ticket fare and fare media structure for rail, bus and ferry services, which should be integrated with a statewide Deduct-A-Ride program and be compatible with the fare media used in New York and adjacent regions.
TSB	Explore feasibility of ramp metering to regulate the entry of vehicles into the traffic stream on limited access highways.
TSB	Evaluate the institution of congestion or value pricing on one or more limited access highways in the CCTIA.
TSB	Implement incident management programs to clear accidents quickly from roadways.
TSB	Make better use of highway informational radio to alert motorists to problems in time for them to alter their routes.
TSB	Evaluate the introduction of congestion or value pricing on transit or transit support facilities, either complimentary to or independently of congestion pricing on roads.
TSB	Re-invest in staff and facilities to strengthen Connecticut's legal weight, safety and diesel truck emissions testing, including ITS systems such as the "weigh-in motion" facilities planned for the Greenwich weigh station that will permit trucks to be pre-cleared and bypass the station.
SWR LRTP	Complete the Route 7 and Route 15 Interchange in Norwalk
SWR LRTP	Install continuous traffic monitoring technology at state lines on I-95, Route 15, I-84 and Route.
SWR LRTP	Design Route 7 improvements between the Route 7 expressway terminus at Grist Mill Road in Norwalk and Route 33 in Wilton
SWR LRTP	Develop and implement operational and safety improvements on I-95 in the South Western Region.
SWR LRTP	Construct improvements at I-95 Exit 16.
SWR LRTP	Design and construct Norwalk Route 1/Cross Street improvements.
SWR LRTP	Complete design and rehabilitate the Norwalk and Saugatuck rail bridges.
SWR LRTP	Install or upgrade traffic signals at the following locations: King Street at Anderson Hill Road; King Street at Rye Lake Road; Mill Street at North Water and South Water Streets; and Palmer Hill Road at the North Mianus School.

Document	Transportation Need
SWR LRTP	Complete the Comly Avenue bridge replacement project.
SWR LRTP	Complete the system-wide traffic responsive signal project.
SWR LRTP	Widen Route 7 from Norwalk to Danbury:
SWR LRTP	Develop and implement access management/curb cut policies for the Route 7 corridor.
SWR LRTP	Complete upgrade of existing signal systems that use older coordination equipment and conduct traffic signal timing optimization projects.
SWR LRTP	Design and construct operational and safety improvements identified by ConnDOT's I-95 Operational Improvements Study.
SWR LRTP	Expand the Connecticut Highway Assistance Motorist Patrol (CHAMP) to serve the Merritt Parkway and other limited access highways not currently served.
SWR LRTP	Upgrade Highway Advisory Radio along I-95, Merritt Parkway and in the Capitol Region to incorporate new technologies that can better serve motorists traveling on Connecticut's highways.
SWR LRTP	Encourage further development of the TRIPS123 system to allow real-time travel information and route-planning capabilities via the internet and telephone for free or route-specific for a fee via telephone, fax, e-mail or pager.
SWR LRTP	Complete the New Haven Rail Line/Danbury Branch Electrification Study and implement recommendations that will improve train serve in the Route 7 corridor.
SWR LRTP	Complete New Haven Branch Line Study Needs Assessment and implement recommendations that will improve branch line rail service.
SWR LRTP	Implement the New Haven Line Electric Multiple Unit (EMU) Fleet Replacement Strategy and purchase of new rail cars to replace the aging New Haven Line fleet.
SWR LRTP	Complete the Northeast Rail Operations Study to identify constraints to local railroads being able to provide service to business and industry along their lines.
SWR LRTP	Implement the recommendations of the Darien/Norwalk Railroad Station parking study.
SWR LRTP	Implement the recommendations of the Stamford Transportation Center Multimodal Services Study to expand transit, bicycle and pedestrian services at the center.
SWR LRTP	Complete work funded by the Ferry Boat Discretionary Grant Program to move Stamford closer to launching ferry service to New York City, Long Island and Shore Points in Connecticut.
SWR LRTP	Design and construct a Weigh in Motion (WIM) system for I-95 in Greenwich.
SWR LRTP	Complete the Rest Area and Service Plaza Statewide Study to identify needed improvements to parking areas, amenities and services.
GBR LRTP	Design and construct improvements to I-95, including additional operating lanes, frontage road, modifying interchange areas and selected consolidation of ramps.
GBR LRTP	Design and construct improvements to the Merritt Parkway including the realignment of interchange areas.
GBR LRTP	Implement I-95 ramp metering and specialized high occupancy vehicle (HOV) lanes and ramps.
GBR LRTP	Expand and enhance existing highway operations activities along I-95.
GBR LRTP	Provide route guidance using real-time dynamic message displays, lane control signals and video cameras from I-95 and Route 8/25 to Downtown Bridgeport.
GBR LRTP	Provide real-time location and arrival information for public transportation users in the Region using dynamic message signs.
GBR LRTP	Implement advanced vehicle location (AVL), using global positioning satellite technology, for transit vehicles in the region.
GBR LRTP	Develop enhanced emergency and law enforcement response to provide increased safety and security for transit patrons.
GBR LRTP	Implement computerized dispatch systems and advanced GIS applications to

Document	Transportation Need
	schedule non-fixed-route transit services.
GBR LRTP	Provide full funding for commuter rail, fixed-route bus and paratransit operations.
GBR LRTP	Preserve and maintain the New Haven line right-of-way in a state of good repair, and modernize, rehabilitate and replace equipment and train consists.
GBR LRTP	Develop and construct a continuous shared-use path extending along the entire 37.5 mile length of the Merritt Parkway and integrate it as a component of the proposed East Coast Greenway, a planned non-motorized corridor that would extend from Maine to Florida
GBR LRTP	Provide computer-aided dispatch systems for rapid deployment of resources to an emergency.
GBR LRTP	Develop an archived data management system.
HV LRTP	Plan for the widening of Route 7 from Wilton to near I-84 in Danbury.
HV LRTP	Initiate ITS planning activities for the I-84 corridor and mid-sized regions such as the Housatonic Valley
HV LRTP	Improve signal coordination throughout the region and conduct a regional signal system coordination study to set standards and develop projects for this efficiency variable.
HV LRTP	Implement the following ITS improvements in the I-84 corridor: a fiber optic communication system, video surveillance, traffic flow monitors, and links to the ConnDOT Highway Operations Center in Newington
HV LRTP	Install a CCTV system in Danbury for urban arterial corridors, especially those located adjacent or parallel to or feeding I-84 to improve emergency traffic diversion operations
HV LRTP	Install electronic information signs at the Housatonic Area Regional Transit (HART) Pulse Point in downtown Danbury.

Guide to abbreviations:

CCTIA	Coastal Corridor Transportation Investment Area's Twenty Year Strategic Plan
CMS 2020	Congestion Mitigation Systems "Vision 2020" Plan
GBR LRTP	Greater Bridgeport Region's Long Range Transportation Plan
HV LRTP	Housatonic Valley's Long Range Transportation Plan
SWR LRTP	South Western Region's Long Range Transportation Plan
TSB	Transportation Strategy Board's Twenty Year Strategic Plan

Appendix E

Initial Screening: Relationship Between Market Packages and Regional Transportation Goals

Service Area	Market Package Name	Promotes economic competitiveness	Improves safety of the transportation system	Improves security of the transportation system	Increases accessibility and mobility	Mitigates environmental impacts	Enhances integration and connectivity	Promotes efficient system management and operation	Emphasizes preservation of existing transportation system	TOTAL
ARCHIVED DATA MANAGEMENT	ITS Data Mart							1	1	2
	ITS Data Warehouse							1	1	2
	ITS Virtual Data Warehouse							1	1	2
PUBLIC TRANSPORTATION	Transit Vehicle Tracking		1	1	1		1	1		5
	Transit Fixed-Route Operations	1			1		1	1		4
	Demand Response Transit Operations	1			1		1	1		4
	Multi-modal Coordination	1			1		1	1		4
	Transit Traveler Information	1			1		1	1		4
	Transit Passenger and Fare Management				1		1	1		3
	Transit Maintenance		1					1	1	3
	Transit Security			1				1		2
TRAVELER INFORMATION	Dynamic Route Guidance	1	1		1			1		4
	ISP Based Trip Planning and Route Guidance	1			1		1	1		4
	Broadcast Traveler Information	1			1			1		3
	Interactive Traveler Information	1			1			1		3
	Autonomous Route Guidance	1			1			1		3
	Integrated Transportation Management/Route Guidance	1			1			1		3
	In Vehicle Signing	1			1			1		3
	Dynamic Ridesharing				1			1		2
TRAFFIC MANAGEMENT	Yellow Pages and Reservation	1								1
	Traffic Information Dissemination	1	1	1	1	1	1	1	1	8
	Roadway Closure Management	1	1		1	1	1	1		6
	Network Surveillance		1	1	1			1	1	5
	Probe Surveillance		1	1	1		1	1		5
	Surface Street Control	1	1		1	1		1		5
	Freeway Control	1	1		1	1		1		5
	Traffic Incident Management System		1	1	1	1		1		5
	Traffic Forecast and Demand Management				1	1	1	1	1	5
	Electronic Toll Collection				1	1		1	1	4
	Railroad Operations Coordination	1	1		1			1		4
	Reversible Lane Management				1	1		1	1	4
	Drawbridge Management		1		1			1	1	4
	HOV Lane Management				1	1		1		3
	Regional Traffic Control				1		1	1		3
	Standard Railroad Grade Crossing		1					1	1	3
	Parking Facility Management	1					1	1		3
	Regional Parking Management	1					1	1		3
	Speed Monitoring		1			1		1		3
	Emissions Monitoring and Management					1		1		2
	Advanced Railroad Grade Crossing		1					1		2
VEHICLE SAFETY	Virtual TMC and Smart Probe Data									0
	Intersection Safety Warning		1		1			1		3
	Intersection Collision Avoidance		1		1			1		3
	Automated Highway System		1		1			1		3
	Vehicle Safety Monitoring		1							1
	Driver Safety Monitoring		1							1
	Longitudinal Safety Warning		1							1
	Lateral Safety Warning		1							1
	Pre-Crash Restraint Deployment		1							1
	Driver Visibility Improvement		1							1
	Advanced Vehicle Longitudinal Control		1							1
	Advanced Vehicle Lateral Control		1							1
COMMERCIAL VEHICLE OPERATIONS	Fleet Administration	1	1	1		1		1	1	6
	Weigh-In-Motion	1	1	1	1	1		1		6
	Freight Administration	1	1	1				1	1	5
	Electronic Clearance	1	1	1				1		4
	CV Administrative Processes	1	1	1				1		4
	International Border Electronic Clearance	1	1	1				1		4
	Roadside CVO Safety	1	1	1				1		4
	On-board CVO and Freight Safety & Security	1	1	1				1		4
	HAZMAT Management		1	1		1		1		4
	Roadside HAZMAT Security Detection and Mitigation		1	1		1		1		4
	Freight Assignment Tracking	1	1	1				1		4
	CVO Fleet Maintenance	1	1					1		3
	CV Driver Security Authentication		1	1				1		3
	Disaster Response and Recovery		1	1	1			1	1	5
	Disaster Traveler Information		1	1	1			1	1	5
	Roadway Service Patrols		1	1	1			1		4

EMERGENCY MANAGEMENT	Wide-Area Alert		1	1	1			1		4
	Early Warning System		1	1	1			1		4
	Evacuation and Reentry Management		1	1	1			1		4
	Emergency Call-Taking and Dispatch		1	1				1		3
	Emergency Routing		1		1			1		3
	Transportation Infrastructure Protection		1	1					1	3
	Mayday and Alarms Support		1	1						2
MAINTENANCE & CONSTRUCTION MANAGEMENT	Maintenance and Construction Activity Coordination	1	1		1	1	1	1	1	7
	Winter Maintenance		1		1	1	1	1	1	6
	Roadway Maintenance and Construction		1		1			1	1	4
	Work Zone Management		1		1			1	1	4
	Work Zone Safety Monitoring		1		1			1	1	4
	Maintenance and Construction Vehicle and Equipment Tracking					1		1	1	3
	Maintenance and Construction Vehicle Maintenance					1		1	1	3
	Road Weather Data Collection		1					1	1	3
	Roadway Automated Treatment		1					1	1	3
	Weather Information Processing and Distribution		1					1		2

Appendix F

	Market Package Name	Promotes economic competitiveness	Improves safety of the transportation system	Improves security of the transportation system	Increases accessibility and mobility	Mitigates environmental impacts	Enhances integration and connectivity	Promotes efficient system management and operation	Emphasizes preservation of existing transportation system	TOTAL	
	Traffic Information Dissemination	1	1	1	1	1	1	1	1	8	
	Maintenance and Construction Activity Coordination	1	1		1	1	1	1	1	7	
	Roadway Closure Management	1	1		1	1	1	1		6	
	Fleet Administration	1	1	1		1		1	1	6	
	Weigh-In-Motion	1	1	1	1	1		1		6	
	Winter Maintenance		1		1	1	1	1	1	6	
	Transit Vehicle Tracking		1	1	1		1	1		5	
	Network Surveillance		1	1	1			1	1	5	
	Probe Surveillance		1	1	1		1	1		5	
	Surface Street Control	1	1		1	1		1		5	
	Freeway Control	1	1		1	1		1		5	
	Traffic Incident Management System		1	1	1	1		1		5	
	Traffic Forecast and Demand Management				1	1	1	1	1	5	
	Freight Administration	1	1	1				1	1	5	
	Disaster Response and Recovery		1	1	1			1	1	5	
	Disaster Traveler Information		1	1	1			1	1	5	
	Transit Fixed-Route Operations	1			1		1	1		4	
	Demand Response Transit Operations	1			1		1	1		4	
	Multi-modal Coordination	1			1		1	1		4	
	Transit Traveler Information	1			1		1	1		4	
	Dynamic Route Guidance	1	1		1			1		4	
	ISP Based Trip Planning and Route Guidance	1			1		1	1		4	
	Electronic Toll Collection				1	1		1	1	4	
	Railroad Operations Coordination	1	1		1			1		4	
	Reversible Lane Management				1	1		1	1	4	
	Drawbridge Management		1		1			1	1	4	
	Electronic Clearance	1	1	1				1		4	
	CV Administrative Processes	1	1	1				1		4	
	International Border Electronic Clearance	1	1	1				1		4	
	Roadside CVO Safety	1	1	1				1		4	
	On-board CVO and Freight Safety & Security	1	1	1				1		4	
	HAZMAT Management		1	1		1		1		4	
	Roadside HAZMAT Security Detection and Mitigation		1	1		1		1		4	
	Freight Assignment Tracking	1	1	1				1		4	
	Roadway Service Patrols		1	1	1			1		4	
	Wide-Area Alert		1	1	1			1		4	
	Early Warning System		1	1	1			1		4	
	Evacuation and Reentry Management		1	1	1			1		4	
	Roadway Maintenance and Construction		1		1			1	1	4	
	Work Zone Management		1		1			1	1	4	
	Work Zone Safety Monitoring		1		1			1	1	4	
		Transit Passenger and Fare Management				1		1	1		3
		Transit Maintenance		1					1	1	3
		Broadcast Traveler Information	1			1			1		3
		Interactive Traveler Information	1			1			1		3
		Autonomous Route Guidance	1			1			1		3
Integrated Transportation Management/Route Guidance		1			1			1		3	
In Vehicle Signing		1			1			1		3	
HOV Lane Management					1	1		1		3	
Regional Traffic Control					1		1	1		3	
Standard Railroad Grade Crossing			1					1	1	3	
Parking Facility Management		1					1	1		3	
Regional Parking Management		1					1	1		3	
Speed Monitoring			1			1		1		3	
Intersection Safety Warning			1		1			1		3	
Intersection Collision Avoidance			1	1	1			1		3	
Automated Highway System			1		1			1		3	
CVO Fleet Maintenance		1	1					1		3	
CV Driver Security Authentication			1	1				1		3	
Emergency Call-Taking and Dispatch			1	1				1		3	
Emergency Routing			1		1			1		3	
Transportation Infrastructure Protection		1	1					1	3		
	Maintenance and Construction Vehicle and Equipment Tracking					1		1	1	3	
	Maintenance and Construction Vehicle Maintenance					1		1	1	3	
	Road Weather Data Collection		1					1	1	3	
	Roadway Automated Treatment		1					1	1	3	
	ITS Data Mart										

ITS Virtual Data Warehouse						1	1	2
Transit Security			1			1		2
Dynamic Ridesharing				1		1		2
Emissions Monitoring and Management					1	1		2
Advanced Railroad Grade Crossing		1				1		2
Mayday and Alarms Support		1	1					2
Weather Information Processing and Distribution		1				1		2
Yellow Pages and Reservation	1							1
Vehicle Safety Monitoring		1						1
Driver Safety Monitoring		1						1
Longitudinal Safety Warning		1						1
Lateral Safety Warning		1						1
Pre-Crash Restraint Deployment		1						1
Driver Visibility Improvement		1						1
Advanced Vehicle Longitudinal Control		1						1
Advanced Vehicle Lateral Control		1						1
Virtual TMC and Smart Probe Data								0

Appendix G

	Roadway Service Patrols	10	Yes	Deployment supports majority of federal and regional transportation goals/objectives
	Wide-Area Alert	10	Yes	Deployment supports majority of federal and regional transportation goals/objectives
	Early Warning System	10	Yes	Deployment supports majority of federal and regional transportation goals/objectives
	Parking Facility Management	9	Yes	Deployment supports majority of federal and regional transportation goals/objectives
	Regional Parking Management	9	Yes	Deployment supports majority of federal and regional transportation goals/objectives
	Emergency Routing	9	Yes	Deployment supports majority of federal and regional transportation goals/objectives
	Demand Response Transit Operations	8	Yes	Deployment supports majority of federal and regional transportation goals/objectives
	Integrated Transportation Management/Route Guidance	7	Yes	Deployment supports majority of federal and regional transportation goals/objectives
	Dynamic Ridesharing	7	Yes	Deployment supports majority of federal and regional transportation goals/objectives
	Emergency Call-Taking and Dispatch	7	Yes	Deployment supports majority of federal and regional transportation goals/objectives
	Maintenance and Construction Activity Coordination	7	Yes	Deployment supports majority of federal and regional transportation goals/objectives
	ITS Data Mart	6	Yes	Critical to successful implementation of ITS and achievement of regional CMP goals
	ITS Data Warehouse	6	Yes	Critical to successful implementation of ITS and achievement of regional CMP goals
	ITS Virtual Data Warehouse	6	Yes	Critical to successful implementation of ITS and achievement of regional CMP goals
	Winter Maintenance	6	Yes	Deployment supports majority of federal and regional transportation goals/objectives
	Transit Maintenance	5	Yes	Deployment supports majority of federal and regional transportation goals/objectives
	Transportation Infrastructure Protection	3	Yes	Deployment supports majority of federal and regional transportation goals/objectives
	Standard Railroad Grade Crossing	15	No	Limited impact within region; greater utility for freight operations
	Fleet Administration	12	No	Most appropriate for CVO-level implementation
	Freight Assignment Tracking	10	No	Most appropriate for CVO-level implementation
	Broadcast Traveler Information	10	No	Technology already implemented in region on a wide scale
	Railroad Operations Coordination	10	No	Limited impact within region; greater utility for freight operations
	Dynamic Route Guidance	7	No	Personal in-vehicle technology; private sector initiative
	ISP Based Trip Planning and Route Guidance	6	No	Personal in-vehicle technology; private sector initiative
	Interactive Traveler Information	6	No	Technology already approaching implementation in region
	In Vehicle Signing	6	No	Personal in-vehicle technology; private sector initiative
	Reversible Lane Management	6	No	Physical/regulatory constraints; evaluate only if paired with other highway operations deployment
	Drawbridge Management	6	No	Limited impact within region
	CV Administrative Processes	6	No	Most appropriate for CVO-level implementation
	CVO Fleet Maintenance	6	No	Most appropriate for CVO-level implementation
	CV Driver Security Authentication	6	No	Most appropriate for CVO-level implementation
	Autonomous Route Guidance	5	No	Personal in-vehicle technology; private sector initiative
	Freight Administration	5	No	Most appropriate for CVO-level implementation
	Maintenance and Construction Vehicle Maintenance	5	No	Low rating; not critical to achievement of regional goals
	Road Weather Data Collection	5	No	Low rating; evaluate only if paired with other highway or data collection deployment
	Roadway Automated Treatment	3	No	Low rating; evaluate only if paired with other highway or data collection deployment
	Mayday and Alarms Support	2	No	Personal in-vehicle technology; private sector initiative

Appendix H

SWRPA Preliminary Planning Project Cost Estimates*

ICM-1: CT 15 ITS Instrumentation

Revised: May 13, 2008

Capital Costs						Notes:
Headend Equipment						Assume another workstation is required at HOC.
Unit	Qty.	Unit Cost	Installed Costs	Lifecycle (years)**		
Workstations/Peripherals (Display)	Each	1	\$ 5,000.00	\$ 5,000.00	5-7	
Rack and Accessories	LS	1	\$ 2,000.00	\$ 2,000.00	10-15	
Ethernet Switch (24 port)	Each	1	\$ 5,000.00	\$ 5,000.00	8-10	
Terminal Server (24 port)	Each	1	\$ 5,000.00	\$ 5,000.00	8-10	
Video Demultiplexer	Each	8	\$ 12,500.00	\$ 12,500.00	8-10	
Video Decoders/Camera Control Software	Each	8	\$ 6,000.00	\$ 48,000.00	10-12	
Camera System Integration (installation, configuration, cabling, etc.)	LS	1	\$ 30,000.00	\$ 30,000.00	N/A	
CMS System Integration (installation, configuration, cabling, etc.)	LS	1	\$ 30,000.00	\$ 30,000.00	N/A	
Headend Subtotal				\$ 137,500.00		
Field Equipment						
Unit	Qty.	Unit Cost	Cost	Lifecycle (years)**		
CMS Signs						
CT 15 NB CMS - Highway	Each	2	\$ 100,000.00	\$ 200,000.00	12-15	
CT 15 SB CMS - Highway	Each	3	\$ 100,000.00	\$ 300,000.00	12-15	
Ethernet Switch	Each	5	\$ 1,200.00	\$ 6,000.00	8-10	
Media converter	Each	5	\$ 700.00	\$ 3,500.00	8-10	
Communications Hardware	Each	5	\$ 1,500.00	\$ 7,500.00	8-10	
Controller Assembly	Each	5	\$ 5,000.00	\$ 25,000.00	8-10	
CMS Subtotal				\$ 542,000.00		
Surveillance Equipment						
Camera Pole with Cabinet and Foundation	Each	8	\$ 40,000.00	\$ 320,000.00	25-30	
Camera Lowering System	Each	8	\$ 8,000.00	\$ 64,000.00	10-12	
Traffic Surveillance Camera (dome-type)	Each	8	\$ 10,000.00	\$ 80,000.00	10-12	
Hybrid cable (power, data, video)	LF	1200	\$ 7.50	\$ 9,000.00	40-50	
Cable attachment hardware	Each	80	\$ 75.00	\$ 6,000.00	8-10	
Coax transient suppressors	Each	8	\$ 150.00	\$ 1,200.00	8-10	
Control transient suppressors	Each	8	\$ 150.00	\$ 1,200.00	8-10	
Video Encoder	Each	8	\$ 3,000.00	\$ 24,000.00	10-12	
Ethernet Switch	Each	8	\$ 1,200.00	\$ 9,600.00	8-10	
Media converter	Each	16	\$ 700.00	\$ 11,200.00	8-10	
Communications Hardware	Each	8	\$ 1,500.00	\$ 12,000.00	8-10	
Surveillance Equipment Subtotal				\$ 538,200.00		
Detection Equipment						
Detection Station with Cabinet	Each	30	\$ 8,000.00	\$ 240,000.00	5-15	
Overweight Vehicle Detection Station with Cabinet	Each	2	\$ 200,000.00	\$ 400,000.00	5-15	
Overheight Vehicle Detection Sensors	Each	1	\$ 30,000.00	\$ 30,000.00	8-10	
Vehicle Image Capture Camera	Each	2	\$ 20,000.00	\$ 40,000.00	10-12	
Communications Hardware	Each	32	\$ 1,500.00	\$ 48,000.00	8-10	
Detection Equipment Subtotal				\$ 758,000.00		
Project Grand Total - Construction				\$ 1,975,700.00		
Engineering (@ 10%)			\$	\$ 197,570.00		
Contingency/Testing/Training (@ 15%)			\$	\$ 296,355.00		
Capital Cost Estimate				\$ 2,469,625.00		
SAY				\$2.47 million		
O&M Costs						
Unit	Qty.	Unit Cost	Cost	Lifecycle (years)**		
Annual Leased Communications Costs - CMS and Cameras	Each	15	\$ 15,000.00	\$ 225,000.00	1	
Annual Leased Communications Costs - Detection Equipment	Each	30	\$ 1,500.00	\$ 45,000.00	1	
FTE at HOC	Each	1	\$ 50,000.00	\$ 50,000.00	1	
Headend Equipment Annual Maintenance	LS	1	\$ 5,000.00	\$ 5,000.00	1	
Surveillance Equipment Annual Maintenance	LS	1	\$ 50,000.00	\$ 25,000.00	1	
CMS Equipment Annual Maintenance	LS	1	\$ 50,000.00	\$ 50,000.00	1	
Detection Equipment Annual Maintenance	LS	1	\$ 60,000.00	\$ 60,000.00	1	
O&M Costs Subtotal				\$ 460,000.00		
Contingency (@ 15%)				\$ 69,000.00		
Capital Cost Estimate				\$ 529,000.00		
SAY				\$ 500,000.00		

* Refer to Section 4.3 of the Project Development and Preliminary Budget Estimate Technical Memorandum for sources and assumptions governing these preliminary cost estimates.

** Refer to Section 4.4 of the Project Development and Preliminary Budget Estimate Technical Memorandum for assumptions governing this lifecycle estimate.

The lifecycle estimate presented here represents for each component the number of years until replacement is needed. These estimates will need to be refined based on the detailed project design, technology selection, etc.

SWRPA Preliminary Planning Project Cost Estimates*

ICM-2: US 1 ITS Instrumentation

Revised: May 13, 2008

Capital Costs					Notes:
Headend Equipment	Unit	Qty.	Unit Cost	Installed Costs	
Workstations/Peripherals (Display)	Each	4	\$ 5,000.00	\$ 20,000.00	Assumes workstations are required at ConnDOT HOC, Greenwich, Norwalk, and Stamford.
Rack and Accessories	LS	4	\$ 2,000.00	\$ 8,000.00	
Ethernet Switch (24 port)	Each	4	\$ 5,000.00	\$ 20,000.00	
Terminal Server (24 port)	Each	4	\$ 5,000.00	\$ 20,000.00	
Video Demultiplexer	Each	4	\$ 12,500.00	\$ 50,000.00	
Video Decoders/Camera Control Software	Each	8	\$ 10,000.00	\$ 80,000.00	Assumes that camera system must be established at four locations, HOC, Greenwich, Norwalk, and Stamford.
Camera System Integration (installation, configuration, cabling, etc.)	LS	4	\$ 50,000.00	\$ 200,000.00	
CMS System Integration (installation, configuration, cabling, etc.)	LS	1	\$ 30,000.00	\$ 30,000.00	Assumes that CMS system is established at ConnDOT HOC.
Headend Subtotal				\$ 423,000.00	

Field Equipment	Unit	Qty.	Unit Cost	Cost	Lifecycle (years)**
CMS Signs					
US 1 NB CMS - Arterial	Each	5	\$ 80,000.00	\$ 400,000.00	12-15
US 1 SB CMS - Arterial	Each	5	\$ 80,000.00	\$ 400,000.00	12-15
Ethernet Switch	Each	10	\$ 1,200.00	\$ 12,000.00	8-10
Media converter	Each	10	\$ 700.00	\$ 7,000.00	8-10
Communications Hardware	Each	10	\$ 1,500.00	\$ 15,000.00	8-10
Controller Assembly	Each	10	\$ 5,000.00	\$ 50,000.00	8-10
CMS Subtotal				\$ 884,000.00	

Surveillance Equipment					
Traffic Surveillance Camera (dome-type)	Each	8	\$ 10,000.00	\$ 80,000.00	10-12
Camera Auxiliary Cabinet	Each	8	\$ 5,000.00	\$ 40,000.00	8-10
Hybrid cable (power, data, video)	LF	800	\$ 7.50	\$ 6,000.00	40-50
Cable attachment hardware	Each	80	\$ 75.00	\$ 6,000.00	8-10
Coax transient suppressors	Each	8	\$ 150.00	\$ 1,200.00	8-10
Control transient suppressors	Each	8	\$ 150.00	\$ 1,200.00	8-10
Video Encoder	Each	8	\$ 3,000.00	\$ 24,000.00	10-12
Ethernet Switch	Each	8	\$ 1,200.00	\$ 9,600.00	8-10
Media converter	Each	16	\$ 700.00	\$ 11,200.00	8-10
Communications Hardware	Each	8	\$ 1,500.00	\$ 12,000.00	8-10
Surveillance Equipment Subtotal				\$ 191,200.00	

Detection Equipment					
Detection Station with Cabinet	Each	20	\$ 8,000.00	\$ 160,000.00	5-15
Communications Hardware	Each	20	\$ 1,500.00	\$ 30,000.00	8-10
Detection Equipment Subtotal				\$ 190,000.00	

Project Grand Total - Construction Engineering (@ 10%)	\$ 1,693,200.00
Contingency/Testing/Training (@ 15%)	\$ 169,320.00
Capital Cost Estimate	\$ 2,116,500.00
SAY	\$2.12 million

OM&M Costs					Notes:
OM&M Costs	Unit	Qty.	Unit Cost	Cost	
Annual Leased Communications Costs - CMS and Cameras	Each	18	\$ 15,000.00	\$ 270,000.00	Assumes a minor incremental cost over existing HOC equipment maintenance costs.
Annual Leased Communications Costs - Detection Equipment	Each	20	\$ 1,500.00	\$ 30,000.00	
1/2 FTE at HOC, Greenwich, Norwalk, Stamford	Each	4	\$ 25,000.00	\$ 100,000.00	
Headend Equipment Annual Maintenance	LS	1	\$ 20,000.00	\$ 20,000.00	
Surveillance Equipment Annual Maintenance	LS	1	\$ 35,000.00	\$ 35,000.00	
CMS Equipment Annual Maintenance	LS	1	\$ 35,000.00	\$ 35,000.00	
Detection Equipment Annual Maintenance	LS	1	\$ 20,000.00	\$ 20,000.00	
OM&M Costs Subtotal				\$ 510,000.00	
Contingency (@ 15%)				\$ 76,500.00	
Capital Cost Estimate				\$ 586,500.00	
SAY				\$ 590,000.00	

* Refer to Section 4.3 of the Project Development and Preliminary Budget Estimate Technical Memorandum for sources and assumptions governing these preliminary cost estimates.
**Refer to Section 4.4 of the Project Development and Preliminary Budget Estimate Technical Memorandum for assumptions governing this lifecycle estimate.
The lifecycle estimate presented here represents for each component the number of years until replacement is needed. These estimates will need to be refined based on the detailed project design, technology selection, etc.

SWRPA Preliminary Planning Project Cost Estimates*

AVL-1: Norwalk Transit District AVL

Revised: May 13, 2008

Capital Costs					Installed Costs		Lifecycle (years)**	Notes:
Workstations/Peripherals	Unit	Qty.	Unit Cost	Cost				
Rack and Accessories	Each	1	\$ 5,000.00	\$ 5,000.00			5-7	
Central System Hardware	LS	1	\$ 2,000.00	\$ 2,000.00			10-15	
AVL Software	LS	1	\$ 50,000.00	\$ 50,000.00			8-10	
Information Display Software	LS	1	\$ 150,000.00	\$ 150,000.00			10-15	
System Integration (Installation, configuration, cabling, etc.)	LS	1	\$ 50,000.00	\$ 50,000.00			10-15	
Radio System Upgrade for Mobile Data Communications	LS	1	\$ 10,000.00	\$ 10,000.00			N/A	
Headend Subtotal	LS	1	\$ 200,000.00	\$ 200,000.00			10-15	Assume that existing digital radio system can be used.
				\$ 467,000.00				
Field Equipment					Unit Cost		Lifecycle (years)**	Notes:
On-Board Equipment	Unit	Qty.	Unit Cost	Cost				
On-Board Fixed Route Bus GPS Unit	Each	50	\$ 6,000.00	\$ 300,000.00			10-12	Assume GPS units include GPS receivers, vehicle logic units (VLU), and driver display unit.
On-Board Demand Response Bus GPS Unit	Each	25	\$ 6,000.00	\$ 150,000.00			10-12	Assume GPS units include GPS receivers, vehicle logic units (VLU), and driver display unit.
On-Board Equipment Subtotal				\$ 450,000.00				
Transfer Location Equipment								
Information Displays	Each	5	\$ 30,000.00	\$ 150,000.00			12-15	
Communications Hardware	Each	5	\$ 5,000.00	\$ 25,000.00			8-10	
Transfer Location Equipment Subtotal				\$ 175,000.00				
Project Grand Total - Construction Engineering (@ 10%)				\$ 1,092,000.00				
Contingency/Testing/Training (@ 15%)				\$ 109,200.00				
Capital Cost Estimate				\$ 1,365,000.00				
SAY				\$1.37 million				

O&M Costs					Unit Cost		Lifecycle (years)**	Notes:
O&M Costs	Unit	Qty.	Unit Cost	Cost				
Headend Equipment Annual Maintenance	LS	1	\$ 50,000.00	\$ 50,000.00			1	
On-Board Equipment Annual Maintenance	LS	1	\$ 45,000.00	\$ 45,000.00			1	
Transfer Location Equipment Annual Maintenance	LS	1	\$ 15,000.00	\$ 15,000.00			1	
O&M Costs Subtotal				\$ 110,000.00				
Contingency (@ 15%)				\$ 16,500.00				
Capital Cost Estimate				\$ 126,500.00				
SAY				\$ 130,000.00				

* Refer to Section 4.3 of the Project Development and Preliminary Budget Estimate Technical Memorandum for sources and assumptions governing these preliminary cost estimates.

**Refer to Section 4.4 of the Project Development and Preliminary Budget Estimate Technical Memorandum for assumptions governing this lifecycle estimate.
The lifecycle estimate presented here represents for each component the number of years until replacement is needed. These estimates will need to be refined based on the detailed project design, technology selection, etc.

SWRPA Preliminary Planning Project Cost Estimates*
AVL-2: CT Transit - Stamford AVL

Revised: May 13, 2008

Capital Costs						Notes:
Headend Equipment		Installed Costs				
	Unit	Qty.	Unit Cost	Cost	Lifecycle (years)**	
Workstations/Peripherals	Each	1	\$ 5,000.00	\$ 5,000.00	5-7	
Rack and Accessories	LS	1	\$ 2,000.00	\$ 2,000.00	10-15	
Central System Hardware	LS	1	\$ 30,000.00	\$ 30,000.00	8-10	
CAD/AVL Software	LS	1	\$ 150,000.00	\$ 150,000.00	10-15	
System Integration (installation, configuration, cabling, etc.)	LS	1	\$ 10,000.00	\$ 10,000.00	N/A	
Radio System Hardware and Upgrade	LS	1	\$ 350,000.00	\$ 350,000.00	10-15	
Headend Subtotal				\$ 547,000.00		
Field Equipment		Unit	Qty.	Unit Cost	Cost	Lifecycle (years)**
On-Board Equipment						
On-Board Fixed Route Bus GPS Unit		Each	46	\$ 9,000.00	\$ 414,000.00	10-12
On-Board Commercial Mobile Data		Each	46	\$ 150.00	\$ 6,900.00	10-12
On-Board Equipment Subtotal					\$ 420,900.00	
Project Grand Total - Construction					\$ 967,900.00	
Engineering (@ 10%)					\$ 96,790.00	
Contingency/Testing/Training (@ 15%)					\$ 145,185.00	
Capital Cost Estimate					\$ 1,209,875.00	
SAY					\$1.21 million	
O&M Costs		Unit	Qty.	Unit Cost	Cost	Lifecycle (years)**
O&M Costs						
Headend Equipment Annual Maintenance		LS	1	\$ 50,000.00	\$ 50,000.00	1
On-Board Equipment Annual Maintenance		LS	1	\$ 45,000.00	\$ 45,000.00	1
O&M Costs Subtotal					\$ 95,000.00	
Contingency (@ 15%)					\$ 14,250.00	
Capital Cost Estimate					\$ 109,250.00	
SAY					\$ 110,000.00	

Assume GPS units include GPS receivers, vehicle logic units (VLU), driver display unit, and digital radio communications.

* Refer to Section 4.3 of the Project Development and Preliminary Budget Estimate Technical Memorandum for sources and assumptions governing these preliminary cost estimates.

** Refer to Section 4.4 of the Project Development and Preliminary Budget Estimate Technical Memorandum for assumptions governing this lifecycle estimate.

The lifecycle estimate presented here represents for each component the number of years until replacement is needed. These estimates will need to be refined based on the detailed project design, technology selection, etc.

SWRPA Preliminary Planning Project Cost Estimates*

TSP-1: US 1 Transit Signal Priority

Revised: May 13, 2008

Capital Costs					Notes:	
Field Equipment		Installed Costs		Lifecycle (years)**		
	Unit	Qty.	Unit Cost			Cost
On-Board Equipment						
On-Board TSP Emitter/Processor Unit		Each	50	\$ 2,000.00	\$ 100,000.00	
ON-Board Equipment Subtotal				\$	100,000.00	
Signal Intersection Equipment					Assumes 80 intersections along US 1 corridor.	
Signal Controller Upgrade		Each	80	\$ 30,000.00		\$ 2,400,000.00
TSP Receiver (2 per intersection)		Each	80	\$ 12,000.00		\$ 960,000.00
ON-Board Equipment Subtotal				\$		3,360,000.00
Project Grand Total - Construction						
Engineering (@ 10%)				\$	346,000.00	
Contingency/Testing/Training (@ 15%)				\$	519,000.00	
Capital Cost Estimate				\$	4,325,000.00	
SAY					\$4.33 million	

O&M Costs

O&M Costs	Unit	Qty.	Unit Cost	Cost	Lifecycle (years)**
Signal Intersection Equipment Annual Maintenance	LS	1	\$ 300,000.00	\$ 300,000.00	1
On-Board Equipment Annual Maintenance	LS	1	\$ 8,000.00	\$ 8,000.00	1
O&M Costs Subtotal				\$	\$ 308,000.00
Contingency (@ 15%)					
Capital Cost Estimate				\$	\$ 46,200.00
SAY				\$	\$ 355,000.00

* Refer to Section 4.3 of the Project Development and Preliminary Budget Estimate Technical Memorandum for sources and assumptions governing these preliminary cost estimates.

**Refer to Section 4.4 of the Project Development and Preliminary Budget Estimate Technical Memorandum for assumptions governing this lifecycle estimate.
The lifecycle estimate presented here represents for each component the number of years until replacement is needed. These estimates will need to be refined based on the detailed project design, technology selection, etc.

SWRPA Preliminary Planning Project Cost Estimates*

TSP-2: Stamford Transit Signal Priority

Revised: May 13, 2008

Capital Costs				Installed Costs		Notes:
Headend Equipment	Unit	Qty.	Unit Cost	Cost	Lifecycle (years)**	
Computerized Central Traffic Control System Software Expansion	LS	1	\$ 150,000.00	\$	150,000.00	8-10
Central Traffic Control System Hardware	LS	1	\$ 100,000.00	\$	100,000.00	8-10
Headend Equipment Subtotal				\$	250,000.00	
Field Equipment						
On-Board Equipment	Unit	Qty.	Unit Cost	Cost	Lifecycle (years)**	
On-Board TSP Emitter/Processor Unit	Each	46	\$ 6,000.00	\$	276,000.00	10-12
On-Board Equipment Subtotal				\$	276,000.00	
Project Grand Total - Construction				\$	526,000.00	
Engineering (@ 10%)				\$	52,600.00	
Contingency/Testing/Training (@ 15%)				\$	78,900.00	
Capital Cost Estimate				\$	657,500.00	
SAY				\$	660,000.00	

Assume that TSP units are installed in all CT Transit-Stamford fixed route vehicles with spares.

O&M Costs						
O&M Costs	Unit	Qty.	Unit Cost	Cost	Lifecycle (years)**	
FTE for Operation of TSP at Control Center	Each	0.5	\$ 50,000.00	\$	25,000.00	1
Headend Equipment Annual Maintenance	LS	1	\$ 25,000.00	\$	25,000.00	1
On-Board Equipment Annual Maintenance	LS	1	\$ 30,000.00	\$	30,000.00	1
O&M Costs Subtotal				\$	80,000.00	
Contingency (@ 15%)				\$	12,000.00	
Capital Cost Estimate				\$	92,000.00	
SAY				\$	95,000.00	

Assume that monitoring and implementing TSP would be part of other traffic control activities.

* Refer to Section 4.3 of the Project Development and Preliminary Budget Estimate Technical Memorandum for sources and assumptions governing these preliminary cost estimates.

**Refer to Section 4.4 of the Project Development and Preliminary Budget Estimate Technical Memorandum for assumptions governing this lifecycle estimate.

The lifecycle estimate presented here represents for each component the number of years until replacement is needed. These estimates will need to be refined based on the detailed project design, technology selection, etc.

SWRPA Preliminary Planning Project Cost Estimates*
AM-1: Stamford Real-Time Traveler Information System

Revised: May 13, 2008

Capital Costs	Installed Costs				Notes:
	Headend Equipment	Unit	Qty.	Unit Cost	
Workstations/Peripherals (Display)		Each	1	\$ 5,000.00	\$ 5,000.00
GIS Base Map Creation		LS	1	\$ 50,000.00	\$ 50,000.00
Customized Traffic Congestion Data Collection and Display Software		LS	1	\$ 200,000.00	\$ 200,000.00
Video Capture Equipment		LS	1	\$ 25,000.00	\$ 25,000.00
Public Website Development		LS	1	\$ 75,000.00	\$ 75,000.00
Web Server		Each	1	\$ 20,000.00	\$ 20,000.00
Rack and Accessories		LS	1	\$ 2,000.00	\$ 2,000.00
Communications Equipment Upgrades		LS	1	\$ 100,000.00	\$ 100,000.00
Headend Subtotal					\$ 375,000.00

Captures still images from traffic cameras and updates them regularly for website.
Includes development, integration, configuration, beta testing, etc.

Field Equipment	Installed Costs				Lifecycle (years)**
	Unit	Qty.	Unit Cost	Cost	
Modifications to Field Detectors and Signal Controllers	Each	190	\$ 2,000.00	\$ 380,000.00	N/A
CMS Subtotal				\$ 380,000.00	
Project Grand Total - Construction				\$ 755,000.00	
Engineering (@ 10%)				\$ 75,500.00	
Contingency/Testing/Training (@ 15%)				\$ 113,250.00	
Capital Cost Estimate				\$ 943,750.00	
SAY				\$ 945,000.00	

O&M Costs	Installed Costs				Lifecycle (years)**
	Unit	Qty.	Unit Cost	Cost	
FTE at HOC	Each	1	\$ 50,000.00	\$ 50,000.00	1
Website Registration, Operation	LS	1	\$ 50,000.00	\$ 50,000.00	1
Headend Software and Equipment Annual Maintenance	LS	1	\$ 50,000.00	\$ 50,000.00	1
Field Equipment Annual Maintenance	LS	1	\$ 20,000.00	\$ 20,000.00	1
O&M Costs Subtotal				\$ 170,000.00	
Contingency (@ 15%)				\$ 25,500.00	
Capital Cost Estimate				\$ 195,500.00	
SAY				\$ 200,000.00	

* Refer to Section 4.3 of the Project Development and Preliminary Budget Estimate Technical Memorandum for sources and assumptions governing these preliminary cost estimates.

**Refer to Section 4.4 of the Project Development and Preliminary Budget Estimate Technical Memorandum for assumptions governing this lifecycle estimate.

The lifecycle estimate presented here represents for each component the number of years until replacement is needed. These estimates will need to be refined based on the detailed project design, technology selection, etc.

SWRPA Preliminary Planning Project Cost Estimates*
IM-1: Norwalk Incident Management System

Revised: May 13, 2008

Capital Costs	Installed Costs				Notes:
	Headend Equipment	Unit	Qty.	Unit Cost	
Workstations/Peripherals (Display)		Each	1	\$ 5,000.00	Assume another workstation is required at Norwalk central traffic control center.
Rack and Accessories		LS	1	\$ 2,000.00	
Ethernet Switch (24 port)		Each	1	\$ 5,000.00	
Terminal Server (24 port)		Each	1	\$ 5,000.00	
Electronic Sign Control Software		LS	1	\$ 100,000.00	
Communications Equipment Upgrades		LS	1	\$ 100,000.00	Integration of traffic control, camera, sign, CAD, GIS, and AVL systems
ITS System Integration (installation, configuration, cabling, etc.)		LS	1	\$ 600,000.00	
Public Website Development		LS	1	\$ 75,000.00	
511 System Interface		LS	1	\$ 100,000.00	
Headend Subtotal				\$ 992,000.00	

Field Equipment	Installed Costs				Lifecycle (years)**
	Unit	Qty.	Unit Cost	Cost	
Electronic Blankout Signs	Each	50	\$ 15,000.00	\$ 750,000.00	12-15
Sign Power and Communications	Each	50	\$ 2,000.00	\$ 100,000.00	25-30
CMS Subtotal				\$ 850,000.00	
Project Grand Total - Construction Engineering (@ 10%)				\$ 1,842,000.00	
Contingency/Testing/Training (@ 15%)				\$ 184,200.00	
Capital Cost Estimate				\$ 2,302,500.00	

SAY \$2.31 million

O&M Costs	Installed Costs				Lifecycle (years)**
	Unit	Qty.	Unit Cost	Cost	
FTE at HOC	Each	1	\$ 50,000.00	\$ 50,000.00	1
Headend Software and Equipment Annual Maintenance	LS	1	\$ 100,000.00	\$ 100,000.00	1
Field Equipment Annual Maintenance	LS	1	\$ 60,000.00	\$ 60,000.00	1
O&M Costs Subtotal				\$ 210,000.00	
Contingency (@ 15%)				\$ 31,500.00	
Capital Cost Estimate				\$ 241,500.00	

SAY \$ 245,000.00

* Refer to Section 4.3 of the Project Development and Preliminary Budget Estimate Technical Memorandum for sources and assumptions governing these preliminary cost estimates.

**Refer to Section 4.4 of the Project Development and Preliminary Budget Estimate Technical Memorandum for assumptions governing this lifecycle estimate.

The lifecycle estimate presented here represents for each component the number of years until replacement is needed. These estimates will need to be refined based on the detailed project design, technology selection, etc.

Appendix I

Overview

The purpose of this project is to conduct a strategic assessment of new and/or enhanced opportunities for the implementation of intelligent transportation systems (ITS) in the South Western Region, with a focus on improving the safety and efficiency of the regional transportation network.

Public involvement was an important component of this project. Public involvement was used as a tool for both the collection and dissemination of information about options, costs and benefits. Opportunities for public involvement were available throughout the duration of study. Public involvement activities were designed to:

1. Educate stakeholders about the National ITS Market Packages, opportunities for implementation in the study area and the potential benefits of deployment;
2. Provide stakeholders with the opportunity to comment on the types of ITS strategies and improvements that may be most appropriate for deployment in the study area;
3. To identify existing and create new partnerships to advance future ITS planning, deployment, operations and maintenance goals; and
4. To gauge the potential levels of public and political support for specific ITS strategies.
5. To identify any issues or flaws with the recommended ITS program based on standard practices of experience of implementing agencies.

Public involvement activities targeted two primary groups. One group included representatives of agencies and organizations involved in planning or operating transportation services or facilities in the study area. The other group included persons with ITS or ITS-related planning, engineering and/or information technology expertise.

The Public Involvement Plan

Public involvement activities were initiated by the South Western Regional Planning Agency (SWRPA) at the pre-development stage. The Technical Transportation Advisory Group (TTAG), which is comprised of local planners, engineers, transit operators and transportation demand management organizations, participated in the development of the initial project concept. The project concept led to the development of a Request for Qualifications (RFQ) which was released by SWRPA in June 2003. Selected members of the TTAG also participated in the development of a scope of work.

Formal public involvement activities commenced with a project kick-off meeting in January 2005. This kick-off meeting was the first of many public involvement opportunities. A summary of other involvement opportunities is as follows:

Technical Advisory Committee. SWRPA formed a Technical Advisory Committee (TAC) comprised of persons with ITS or ITS-related planning, engineering or information technology

experience. TAC members were recruited from member municipalities, transit agencies serving the Region, the Connecticut Department of Transportation, the Federal Highway Administration and transportation management agencies. Participation by members of local and state emergency management agencies also will be sought.

The TAC was involved in the development and review of all study products.

The TAC met seven (7) times, in person or via teleconference, during the course of this study. Meeting topics included topics such as review of primary and secondary study area data, discussion of ITS market packages and the potential benefits to the Region, selection of candidate strategies for quantitative evaluation and the development of a recommended program of improvements that will address existing needs and improve future operations. Members of the TAC served as project liaisons with their respective agencies and with their peers.

Summaries of the TAC meetings are provided at the end of this memorandum.

Peer-to-Peer Outreach. SWRPA conducted interviews with representatives of selected organizations to identify emerging ITS technologies and needs, institutional issues and policies that should be considered in the development of a regional ITS strategic plan. SWRPA reached out both to organizations within the primary and secondary study areas and to organizations in similar metropolitan areas that have successfully deployed ITS. The majority of these interviews were conducted by telephone.

Website. SWRPA created a project page on its website, www.swrpa.org. The project page is located at <http://www.swrpa.org/Default.aspx?Transport=150>.

The project webpage was used as a means of posting notice of all meeting associated with the project. The website was also used to display, and make available for download, all draft and final study products.

Staff contact information was available on the webpage. SWRPA's website also includes an electronic "postcard" that may be used to request information on this and other projects.

Media Involvement. SWRPA maintains an extensive list of print, radio and television media outlets serving the primary and secondary study areas. Press releases can be used to educate the public about study milestones and the availability of study products, including the final report.

SWRPA regularly uses the media as a means of communicating information about planning activities. Media coverage has been consistently provided by the following: Greenwich Time, Stamford Advocate, The Hour (Norwalk), Connecticut Post (Bridgeport), New Haven Register, Hartford Courant, Darien News, Norwalk Citizen-News, Westport News, New Canaan Advertiser, Wilton Bulletin, News 12 Connecticut, WICC/WEBE radio (Bridgeport), WEZN radio (Milford), WGCH radio (Greenwich), WSTC/WNLK radio (Stamford/Norwalk) WELI/WKCI radio (New Haven) and WABC radio (New York).

Public Meetings. Towards the conclusion of the study, SWRPA held four (4) public meetings to solicit input on the study's findings and final report. The meetings were targeted towards specific groups. However, all meetings were open to the general public. All of the meetings consisted of a presentation about proposed ITS deployment and their benefits followed by a discussion session.

Meetings were held on October 16, 2008 in Darien, Connecticut (as part of the TTAG meeting), October 21, 2008 at CT DOT headquarters in Newington, Connecticut, October 27, 2008 in Norwalk, Connecticut (as part of the South Western Region Metropolitan Planning Organization meeting) and December 4, 2008 in Stamford, Connecticut (as part of the Quarterly Planners meeting). Agendas or summaries from these meetings are provided in the appendix to this document.

The October 21, 2008 meeting at CT DOT headquarters consisted of a longer program, including an expanded presentation and discussion session as well as interactive exercise covering ITS policy issues in Connecticut. The target audience for this meeting was ITS practitioners at CT DOT and FHWA who plan, build and operate the state's ITS equipment.

Summary of Comments Received

This study was conducted using a collaborative process that relied on guidance and input from the Technical Advisory Committee (TAC) and other stakeholders. TAC input was especially important as its members would be the ones responsible for realization of the ITS strategies proposed. A summary of key comments received is provided below.

Technical Advisory Committee Comments. The study Technical Advisory Committee (TAC) was actively involved in the project from conception through to the final report. The TAC was a sounding board for the study's findings, which included review of study products before they were released to the public. The TAC was also the source of suggestions for which strategies to model using IDAS. Summaries of the TAC meetings are provided in the appendix to this document.

Connecticut Department of Transportation Comments. Connecticut Department of Transportation (CT DOT) was actively involved in the project from initial conception through to the final report. As such, CT DOT continually provided input and guidance into the study during all phases. Presented below is the full text of CT DOT's comments provided after release of the draft final report and subsequent to the October 21, 2008 meeting at CT DOT headquarters in Newington, Connecticut:

The Highway Operations Section offers the following comments relative to the South Western Region ITS Strategic Plan; Evaluation of ITS Strategies:

- 1. The Department of Transportation, (Department) Statewide approach to ITS installation will be to expand the existing Incident Management System (CCTV Cameras, Changeable Message Signing, Traffic Flow Monitors and Highway Advisory Radio) on Limited Access Highways first. After the Incident Management System has*

been substantially established on the Limited Access Highway System, the Department will expand system installation to other arterial roadways such as U.S. Rte 1 in the South Western Region.

- 2. The Department's highest priorities for the installation of ITS in the South Western Region are: 1.) to replace the existing CCTV Camera and Changeable Message Signing that were originally installed in 1995 and are nearing the end of their useful life expectancy, 2.) deploy a "511" Traveler Information Telephone Number and Website and 3.) DOT Camera Distribution System for Emergency Responders.*
- 3. The ITS Strategies proposed need to be classified by funding source, budget and year(s) of required funding. It should be identified how these projects will compare against the annual Regional apportionment for federal funding to be included on the Transportation Improvement Plan (TIP).*
- 4. ICM-1, The deployment of additional VMS, CCTV Cameras and communications equipment on CT 15 (Merritt Parkway) [presents] a few challenges. The proposed installation of ITS equipment will be subject to the concurrence of the Merritt Parkway Advisory Committee due to the historic nature of Rte. 15. The geography on the Merritt Parkway includes the mature growth trees and vegetation that limit the sightline for traffic surveillance by CCTV Camera installation. It is the Department's policy to verify a roadway incident or condition before providing that information to the public. The ability of the Highway Operations Center to provide effective incident management detection will be reduced by the limited sightline provided by the proposed CCTV camera system.*
- 5. ICM-2, The deployment of additional VMS, cameras and communications equipment on U.S. 1. The Department's priority for additional CCTV Camera and Changeable Message Sign installations will be on Interstate Highway's first before an installation will be proposed on U.S. Rte. 1. (See Comment 1). In the shorter term however, this type of regional camera and VMS surveillance may be better served at the municipal level. The signalized intersections on U.S. Rte. 1 in Greenwich and Stamford are owned and operated by the municipalities. Adequate staffing needs for camera and VMS monitoring and maintenance will need to be identified by a Systems Engineering Analysis.*
- 6. IM-1, The deployment of blankout signs and integration of Norwalk ITS systems. An investment in the installation of infrastructure in the City of Norwalk should accompany an investment in the City's staff to provide oversight and operation for any proposed equipment. Adequate staffing needs for electronic blankout sign monitoring and maintenance will need to be identified by a Systems Engineering Analysis. The installation of electronic blankout signs at State owned and maintained traffic signals is not desirable due to the need for additional operations and maintenance. The Department however, is in the process of purchasing "temporary traffic control signing" compliant with the MUTCD in the new coral pink color. These signs will be distributed to the Department's Maintenance Garages for deployment of diversion routes in response to incidents on I-95. The new temporary traffic control signs are expected to be provided to Department staff in early 2009.*

Meeting Summaries

- TAC meeting summary – January 27, 2005
- TAC meeting summary – May 11, 2005
- TAC meeting summary – January 10, 2006
- TAC meeting summary – April 21, 2006
- TAC meeting summary – April 13, 2007
- TAC meeting summary – June 19, 2008
- TAC meeting agenda – October 16, 2008
- Transportation Technical Advisory Group meeting summary – October 16, 2008
- SWR ITS Strategic Plan Outreach Meeting summary – October 21, 2008
- SWR Metropolitan Planning Organization meeting summary – October 27, 2008
- SWR Planners Meeting agenda – December 4, 2008

South Western Region ITS Plan Technical Advisory Committee

South Western Regional Planning Agency
Stamford Government Center
888 Washington Boulevard, 3rd Floor
Stamford, CT 06901

January 27, 2005, 10:00 a.m.

Meeting Summary

In attendance.

TAC Members: Richard Corona (ConnDOT); Richard Fournier (CT OEM-Area 1); Veera Karukonda (Stamford Traffic Engineering); John Lyons (Metropool); Louis Schulman (Norwalk Transit District); Michael Yeosock (Norwalk DPW).

SWRPA Staff: Melissa Leigh and Susan Prosi.

Consultants: Sharat Kalluri, Martha Morecock and Michael Morehouse (Wilbur Smith Associates); and Susan Carlson (PP&A).

Meeting Summary. Melissa Leigh welcomed all in attendance to the initial meeting of the Technical Advisory Committee (TAC) for the South Western Region's ITS Strategic Plan. Ms. Leigh noted that the purpose of this project was to identify specific ITS projects and applications needed to improve transportation system performance from the perspectives of operations, safety and customer service. She distinguished this project from the Connecticut Department of Transportation's state-wide and regional ITS architecture projects, noting that ConnDOT's project will produce a framework to support specific project recommendations.

Ms. Leigh then asked those present to introduce themselves. At the request of a member of the Technical Advisory Committee, members of the consultant team also provided brief summaries of their ITS project experience. Team members cited experience in architecture development, signal systems engineering, fare collection and revenue collection systems, traveler information services, transit and capital projects planning and cost estimation.

Ms. Leigh then turned leadership of the meeting over to the consultant team which is lead by prime consultant, Wilbur Smith Associates. Sub-consultants on the project are Transystems Corporation and Project Planning & Analysis.

The consultant team led the TAC through a presentation placing the study in context, noting the project's relationship to the state-wide and regional architectures under development by ConnDOT and previous studies/plans developed by SWRPA. The presentation also provided a brief summary of primary tasks in the project's scope of work. Key points highlighted during the presentation include:

- Definition of the primary and secondary study areas: The primary study area is the geographic area covered by SWRPA and adjacent planning regions comprise the secondary study area.

- Opportunities for Stakeholder Involvement: Stakeholders can get involved in four ways: through participation on the TAC, in issue-specific forums or workshops, interviews with members of the project team and meetings with policymakers. A preliminary list of TAC members and stakeholder organizations was distributed for comment.
- Role of the TAC: The role of the TAC is to provide technical expertise to the planning process. TAC members will assist in the review of study products, collection of data, identification of resources and the establishment of project priorities.
- Protocol for Communications: TAC members should communicate comments, questions and ideas to the consultant team through Ms. Leigh. She will manage this information, ensuring that critical information is shared among all consultant team and TAC members in a complete and efficient way. The consultant team also will communicate to the TAC through Ms. Leigh.
- Core Tasks: Core tasks include data collection, stakeholder involvement, screening (issues/goals/objectives, environmental sweep, ITS strategy benefits), development of a performance matrix and evaluation of benefits, and development of a program plan (policy, strategies and projects, conceptual financial plan).
- Evaluation: Qualitative and quantitative assessments will be conducted. IDAS and TRANPLAN will be used to model alternatives and quantify potential benefits. Customer satisfaction also will be measured.
- Program Plan: The plan will present its recommendations in three implementation periods: 0-5 years, 5-10 years and 10-20 years.
- Schedule: Project activities will occur over an 18 month period. It is anticipated that data collection activities will be completed in March 2005, alternatives and improvements will be identified by December 2005 and the recommended program/final report will be available in July 2006. A copy of the project schedule was distributed.

The consultant team then invited questions and comments from the TAC. The following is a summary of comments and questions raised:

- It was recommended that a financially constrained plan be developed to aid incorporation of recommended projects into the Region's Transportation Improvement Program (TIP) and Long Range Transportation Plan (LRTP).
- It was recommended that the program plan rank priorities and projects and link those priorities and projects with costs to aid in the selection of specific elements for inclusion in the TIP.
- The TAC asked what source of cost data would be used. The consultant team indicated that an on-line cost-benefit database for ITS elements is available and updated regularly. The consultants were asked to provide a URL for this website.
- The TAC recommended that the consultant team review the following studies and plans: ConnDOT's newly released Master Transportation Plan; ConnDOT's Rail Fleet Plan, released 6/2004; the Transportation Strategy Board's 20 Year Plan (1/2002) and continued endorsement of plan policies and principles (1/2005); the Coastal Corridor

Transportation Investment Area Plan (11/2001) and continued endorsement of plan policies and principles (11/2004); SWRPA's Darien/Norwalk Railroad Parking Study (12/2004); the City of Stamford's Multi-modal Study; the TRIPS 1-2-3 Implementation Plan; the Port Authority of New York-New Jersey Smart Card Implementation Plan (Fall 2004); scopes of work for the ConnDOT and New York State Department of Transportation (NYSDOT) truck stop/service plaza/rest area improvement studies; ConnDOT, NYSDOT and Federal Highway Administration plans for the implementation of CVISN; and scope of services offered and planned by the Hudson Valley Traffic Management Center. It also was recommended that member municipalities send relevant sections of current studies to SWRPA for delivery to the consultant team.

- It was recommended that the consultant team interview representatives of TRANSCOM and the Port Authority of New York-New Jersey to see what technologies are in place or planned to support broader regional ITS applications, identify opportunities for technology and knowledge sharing and to identify best practices.

The consultant team then distributed a draft goals survey and a draft questionnaire for review and discussion. Susan Carlson of Project Planning & Analysis stated that the goals survey and questionnaire would be sent in advance to interview subjects and telephone or face-to-face interviews would be scheduled after receipt of a completed form.

The TAC noted that some knowledge of ITS knowledge was necessary in order for responses to the goals survey or questionnaire to be meaningful. Other recommendations included:

- Target audience for the goals survey and questionnaire should be determined prior to refinement. It was further noted that the goals survey and questionnaire should be used as separate tools for separate audiences. The TAC did not support making the goals survey or questionnaire generally available on a website.
- It was recommended that the information requested by both the goals survey and the questionnaire link back to the project objectives, with a particular emphasis on mobility, congestion and safety.
- The TAC also recommended that the interview process be more fully developed, e.g. distribution of goals survey or questionnaire, timing of follow up interview, format for interview (phone, e-mail, personal, individual or small group, etc.), how information will be catalogued and presented, etc. It was further recommended that in order to make best use of time, the process should be streamlined where possible.
- It was recommended that the consultant team revise the draft goals survey and questionnaire to address the comments of the TAC and to redistribute the revised drafts to the TAC through Ms. Leigh.

The consultant team identified the completion of an ITS elements inventory as the next step. This inventory will be presented in database form with the format to be developed in consultation with SWRPA, ConnDOT and key municipal staff.

Ms. Leigh will distribute a summary of the meeting with a copy of the consultant team's presentation to the TAC by electronic mail. Ms. Leigh also will share the revised draft goals survey and questionnaire with the TAC once it becomes available.

South Western Region ITS Strategic Plan Meeting of the Technical Advisory Committee

South Western Regional Planning Agency
888 Washington Boulevard, 3rd Floor
Stamford, CT 06901

May 11, 2005 at 1:30 p.m.

MEETING SUMMARY

Present: Louis Schulman, Norwalk Transit District; Michael Yeosock, City of Norwalk; Veera Karukonda, City of Stamford; and Melissa Leigh and Sue Prosi, SWRPA.

Consultants: Michael Morehouse, Martha Morecock and Sharat Kalluri, Wilbur Smith Associates; and Santosh Misrah, TranSystems.

Summary: Melissa Leigh welcomed all in attendance to the meeting and requested self-introductions from all present. Ms. Leigh then indicated that the consultant team should take the lead with discussion of project progress.

Michael Morehouse reviewed the boundaries of the primary and secondary study areas and gave a brief description of the types of resources reviewed during the data collection phase of the project. He noted that relevant plans, studies and maps were reviewed to identify common ITS goals and needs, existing and planned services and facilities, and existing and planned ITS elements. These efforts yielded the draft technical memorandum distributed prior to the meeting and an electronic inventory of ITS elements.

Mr. Morehouse then presented study goals. He noted that goals were derived by ranking goals stated in the plans and studies collected during the data collection phase. A member of the Technical Advisory Committee (TAC) asked what criteria were used to rank the goals. Mr. Morehouse identified frequency as the factor used to screen goals and further noted that the goals selected were identified in many of the plans and studies reviewed. TAC members questioned whether this method of selecting goals was appropriate and referred the consultant team to the goals section of the region's Long Range Transportation Plan.

Martha Morecock noted that the goals prepared for this study by Wilbur Smith Associates supported the most recent (October 2003) version of the National Architecture Requirements.

Ms. Leigh noted that many of the region's stakeholders were frustrated by the State of Connecticut's architecture development process. One of the primary frustrations, Ms. Leigh noted, was the State's unwillingness to include the full range of modal options in

their architecture, despite the benefits to users and the transportation system overall. Rail freight, waterborne transportation, air transport, complete representation of emergency management and security agencies in architecture interfaces are some of the areas in which the State fell short. Ms. Morecock stated that the consultant team would work with the TAC and other stakeholders to include strategies needed to yield a complete multi-modal plan.

Mr. Morehouse and Ms. Morecock then presented the draft study goals. Louis Schulman asked how the goals were prioritized. Mr. Morehouse noted that the goals were not prioritized, but presented in random order. Mr. Schulman asked that the presentation and other pre-evaluation documents be revised to remove the numbering so as not to create the appearance of prioritized goals.

Comments from the TAC regarding the draft goals are as follows:

- Metrics should be provided for all goals.
- The safety goal should be expanded to include security and infrastructure protection.
- The safety goal should be re-phrased to be inclusive of all modes.
- The intermodality goal is too limited and the last sentence should be removed.
- The “environment preservation” goal should be renamed. “Reduce adverse environmental impacts” was recommended as an alternative.
- The TAC requested re-phrasing of the financial feasibility goal. In particular, the TAC requested that the phrase “equate transportation efficiency with business performance” be removed and replaced with a phrase that describes a systems orientation and achieving a balance between investments and gains in efficiency as the goal.
- It was recommended that the “support economic growth” goal be replaced with an “economic competitiveness” goal as is found in the region’s Long Range Transportation Plan.
- A member of the TAC questioned whether customer satisfaction should be an independent goal.
- A member of the TAC recommended that the consultant team review the Statewide Incident Management Plan prepared by the Transportation Strategy Board’s Incident Management Task Force to identify performance measures related to safety.
- Overall, it was recommended that the consultant team review the goals in the region’s Long Range Transportation Plan, many of which were derived as a result of prior study and evaluation. The TAC also stated that the goals of the ITS plan should be consistent with and supportive of the Long Range Transportation Plan’s goals.

Ms. Leigh noted that the goals presented for discussion were not included in the draft technical memorandum distributed for review prior to the meeting. She reminded the consultant team that all materials to be reviewed at meetings of the TAC must be

submitted at least one week prior to the meeting to allow adequate time for TAC members to prepare.

The TAC noted that neither the presentation nor the technical memorandum described how the goals were derived, how the goals relate to information obtained during data collection activities, or how the proposed performance measures support the goals. It was requested that the technical memorandum be expanded and/or re-organized to include a statement of the goals and to address the issues the “flow and linkage” issues identified during the meeting.

Mr. Morehouse shifted discussion to the electronic database of ITS elements that was compiled during the data collection phase. He noted that camera locations in Norwalk and Greenwich were not included. Ms. Leigh asked why that information had not been obtained when the local contact persons were TAC members. Norwalk representatives indicated that the information had not been requested. Mr. Morehouse indicated that a member of his team would follow up with those persons.

Mr. Morehouse then asked the TAC whether the database appeared otherwise complete. Ms. Leigh noted that the database had not been submitted to SWRPA and requested that Wilbur Smith Associates forward that database to SWRPA for review as soon as possible.

Mr. Morehouse referred the TAC to the report and the presentation to see if the inventory of facilities, services and operators appeared complete. Mr. Schulman noted that commuter connections/rail shuttle information appeared to be missing. Sue Prosi noted that Transcom’s involvement in ITS is greater than what is reflected in the technical memorandum and that IEN should be added.

Ms. Prosi also noted that all rail stations should be listed, not just stations where transfer is available. Ms. Leigh also noted that the stations are not under the control of MetroNorth and that correct information about ownership and operation should be noted for each station. Mr. Schulman stated that para-transit and AMTRAK service were omitted from the charts.

Ms. Prosi noted that listings of planned projects should be updated to match the timelines reflected in the TIP and STIP. She offered to provide updated dates for planned projects in the South Western Region. She also requested that discussion of future ITS improvements include regional bus and rail improvements, and that the phrase “bus rapid transit” be replaced with a more accurate description of regional bus service.

It was also noted that the South Western Region’s preference is implementation of a universal farecard, not just a regional farecard. The report should be revised to reflect this preference.

Ms. Morecock then reviewed the National Architecture requirements and distributed a summary of Market Packages. She recommended that the TAC review project goals to determine how those goals can be addressed using ITS.

Ms. Morecock also described the process through which Market Packages would be screened, and referred TAC members to the weighted matrix in the version of the technical memorandum distributed at the meeting. She added that an environmental screen also would be conducted as a means of identifying those ITS strategies that have been implemented successfully in other areas of the country with similar conditions and needs. This two-tiered screening process will be used to identify 10 Market Packages to be evaluated using IDAS.

The TAC and consultant team then identified immediate next steps:

- Wilbur Smith will submit the ITS elements database to SWRPA immediately.
- Wilbur Smith Associates will submit revised goals statements to SWRPA by May 17, 2005.
- Wilbur Smith Associates will submit a written summary of the process through which Market Packages will be screened and prioritized (weighted matrix and environmental screen) to SWRPA the week of May 16, 2005.
- The TAC will submit additional comments to SWRPA by May 20, 2005.
- SWRPA will submit a summary of TAC and staff comments to Wilbur Smith Associates by June 1, 2005.
- Wilbur Smith Associates will submit a revised technical memorandum to SWRPA by June 15, 2005.

South Western Region ITS Strategic Plan Meeting of the Technical Advisory Committee

Norwalk Transit District
275 Wilson Avenue
Norwalk, CT 06854

January 10, 2006 at 11:00 a.m.

MEETING SUMMARY

Present: Bob DeSanto (Town of Greenwich); John Lyons (Metropool); Michael Yeosock (City of Norwalk); Stephen Hill and Louis Schulman (Norwalk Transit District); Veera Karukonda (City of Stamford); and Alex Karman, Melissa Leigh and Sue Prosi (SWRPA).

Meeting Summary: Melissa Leigh welcomed members of the Technical Advisory Committee (TAC) to the meeting and thanked the Norwalk Transit District for providing meeting space and lunch.

Ms. Leigh briefly reviewed the project's Scope of Work and the reassignment of tasks resulting from the termination of the project consultant. She noted several minor changes to the Scope of Work:

1. The focus of key personnel interviews will be collection of best practices and lessons learned data, rather than on inventory-type data.
2. A review of the statewide architecture and identification of modifications needed to satisfy regional needs will be added to the Scope of Work.
3. At this time, all tasks except those associated with quantitative modeling, will be conducted by SWRPA. Quantitative modeling will be outsourced.

Ms. Leigh referred the TAC to Technical Memorandum No. 1 and asked TAC members for comments, corrections and questions. Sue Prosi recommended that the media be identified as a stakeholder, stating that the media does and will continue to play a key role in the dissemination of traveler information. She further noted that traveler information systems is an area of ITS where private investment may reduce or eliminate the need for public control or investment in such technologies.

John Lyons offered several suggestions for engaging the business community in the ITS planning process. He noted that Chambers of Commerce and other business organizations may not be the most effective way to deliver information to commuters. Ms. Leigh noted that in past studies, SWRPA has used Metropool as a link to commuters and to the business community.

Ms. Prosi suggested that the Region's technology companies may be a good source of information about the business sector's ITS priorities. Ms. Leigh asked Mr. Lyons whether Metropool is willing to work with SWRPA to identify appropriate persons to engage in such discussions through focus groups or other means. Mr. Lyons stated that Metropool would be interested in helping engage the business sector in such an effort.

Bob DeSanto distributed an article on Metropolitan Planning Organization (MPO) level ITS planning. Ms. Leigh stated that copies would be distributed to the TAC with the meeting summary.

Mr. DeSanto asked about the project's history and how it fits with National and regional architecture requirements. Ms. Leigh provided a brief overview including SWRPA's involvement in the development of the state's architecture and satisfaction of regional architecture requirements.

Ms. Prosi noted that the United States Coast Guard also should be added to the list of stakeholders contained in the Technical Memorandum.

Ms. Leigh indicated that she would integrate the TAC's comments into the Technical Memorandum or other documents, as appropriate.

Alex Karman presented the "Environmental Screen: Selection of Comparable Metro Areas" memorandum. He stated that comparable metropolitan areas were selected on the basis of the following criteria: demographics, transportation statistics, commute patterns, geographical features, climate and corridor-based development. Ms. Leigh added that like the Region's eight towns, regions considered for comparison comprised a single metropolitan statistical area.

Mr. Karman identified four metropolitan areas for possible review and evaluation: Wilmington-Newark, Delaware; Madison, Wisconsin; San Mateo, California; and Mercer County, New Jersey.

Mr. Karman referred the TAC to the draft questionnaire to guide interviews with key personnel in these metropolitan areas. He noted that the environmental sweep process is a qualitative form of evaluation, although he acknowledged that some of these metropolitan areas may have conducted some level of quantitative evaluation.

Ms. Prosi questioned whether Madison is a comparable metropolitan area. She noted that as a state capital and university town, Madison's stature and trends are quite different from the Region. She also noted that Madison's climate is quite different, particularly during the winter months. Louis Schulman and Mr. Lyons agreed with Ms. Prosi. All three agreed that commuter rail service should be present in all comparable metropolitan areas.

The TAC agreed to remove Madison from the list of comparable areas and asked Mr. Karman to identify a replacement. Mr. Karman noted that, in addition to the comparable

areas presented, he had reviewed the characteristics of Howard County, Maryland, and Fairfax County, Virginia. He recommended using one of these metropolitan areas as a replacement. Ms. Leigh recommended use of Howard County as a replacement, stating that the land use patterns in that county are similar to those in the Region. The TAC agreed to use Howard County as the replacement and Mr. Karman stated he would update the technical memorandum accordingly.

The TAC discussed the questionnaire accompanying the environmental sweep document. The TAC agreed that the questionnaire and environmental screen should focus on ITS deployment, not architecture. They recommended reordering the questionnaire to place deployment questions at the beginning and to place architecture questions at the end and to give such data a supporting role.

Ms. Prosi stated that the Volpe Transportation Center may be used as a technical resource for information on best practice in state-regional coordination and ITS architecture maintenance. She recommended that some information on state-regional or state-level best practices be included in the environmental sweep.

Mr. Schulman noted that the Statewide Bus Study may also be a resource for identifying screening methodologies and comparable metropolitan areas.

Ms. Prosi suggested that the questionnaire also be used to collect information from selected stakeholders in the primary and secondary study areas. The TAC agreed with her recommendation. Ms. Leigh indicated that such activities would be integrated with the public involvement process.

Ms. Leigh asked the TAC to review the document, "Preliminary Screening: Matrix Analysis." She provided a brief overview of the process and its results. She noted that the process was a useful tool for relating market packages and service areas to general planning factors and goals, but that additional filtering was necessary to develop a short-list of strategies worthy of quantitative evaluation.

She referred the TAC to a list of parameters that may be used to further narrow the list of strategies. Mr. Schulman suggested several modifications to further tune the parameters: federal investment in ITS infrastructure should be considered in addition to state and local investment; ability of technology to improve coordination is as important as use of technology to improve connectivity and intermodality; and ability to attract local funds and political support also should be considered. The TAC agreed that the listed parameters reflected the most critical factors for the Region.

Ms. Leigh stated that the ultimate goal of the preliminary screening process is to yield a list of 10-20 strategies to be evaluated quantitatively. She asked the TAC whether they supported combining similar strategies and modeling as a single strategy. The TAC concurred that grouping similar strategies into a single strategy for evaluation purposes was a good approach.

It was also recommended that Ms. Leigh contact Paul Buckley at the Connecticut Department of Transportation and staff at the New York Metropolitan Transportation Council to determine how many strategies should be evaluated, given limitations of time and budget.

Ms. Leigh referred the TAC to the sorted matrix. She noted that the 15 strategies in the third tier could be eliminated from further evaluation. These items relied on technology that was not proven and readily available, were personal in nature or had no applicability in the Region. She asked the TAC if there were any strategies in the first or second tier that should be eliminated at this time. Mr. Schulman recommended eliminated emissions monitoring and High Occupancy Vehicle (HOV) lanes technologies. The former is purely a state/federal function and the latter had been previously analyzed and rejected on both political and practical grounds. The TAC concurred with Mr. Schulman's recommendation.

Ms. Prosi recommended that staff and the TAC look at the IDAS model to identify the types of ITS strategies that produced consistent, positive results regardless of the specific inputs. She suggested that the benefits of such strategies could be extrapolated from previous results and customized modeling/evaluation is not necessary. The TAC supported Ms. Prosi's suggestion.

Ms. Leigh summarized next steps for the TAC:

- Technical Memorandum No. 1 would be revised to reflect comment made during the meeting. A final version of the document will be produced, distributed to TAC members and posted on SWRPA's website.
- The environmental screen memorandum will be revised to reflect the changes in comparable metropolitan areas discussed during the meeting. A revised draft will be distributed the TAC members and posted on SWRPA's website.
- SWRPA will revise the questionnaire as discussed and commence data collection associated with the environmental screening process.
- The preliminary matrix memorandum will be revised to reflect the amended parameters and commence parameter-based screening.
- Public involvement plan will be revised to include involvement of the business community and the media. The public involvement plan also will be revised to reflect use of questionnaire to collect deployment-level information from stakeholders in the primary and secondary area. A copy of the revised public involvement plan will be distributed to TAC members and posted on SWRPA's website. The next meeting will take place in mid-March 2006, via teleconference, to discuss additional screening results.
- SWRPA will develop a draft Request for Proposals (RFP) and scope of work for the quantitative evaluation component of this project. These draft documents will be presented to the TAC for review at a future meeting (anticipated – mid-April).

South Western Region ITS Strategic Plan Meeting of the Technical Advisory Committee

South Western Regional Planning Agency
888 Washington Boulevard, 3rd Floor
Stamford, CT 06901

April 21, 2006, at 9:30 a.m.

MEETING AGENDA

Present: Veera Karukonda, City of Stamford; John Lyon, MetroPool; Louis Schulman, Norwalk Transit District; Michael Yeosock City of Norwalk; and Alex Karman, Melissa Leigh and Sue Prosi, SWRPA.

Meeting Summary. Melissa Leigh welcomed all present to the meeting. Those present agreed to dispense with introductions as no new participants were in attendance.

Ms. Leigh asked those present to refer to the draft Public Involvement Plan. She noted that SWRPA would be undertaking numerous public involvement sessions over the next year on a variety of transportation issues. She recommended that general outreach efforts for this project be combined with outreach efforts for other projects as a way to make best use of stakeholder time, place ITS in the context of appropriate transportation improvements and to make the concept of ITS more accessible to persons without a transportation background. Those presents agreed to follow this approach.

Louis Schulman noted that at a recent meeting of the South Western Regional Mental Health Board (SWRMHB)¹, a number of transportation issues were raised. Concerns addressed both hours of transit operations, accessibility of facilities and information and fee/payment issues. He noted that SWRMHB and member organizations should be targeted for public outreach and consultation.

Ms. Leigh noted that targeted outreach to other advocacy groups also should be planned. She asked those present to state what stakeholder groups should be targeted for outreach. The following stakeholder groups were noted: business organizations; senior citizens; social service organizations serving public assistance recipients and other low income populations; mental health service providers; organizations serving the physically and developmentally disabled; and organizations serving persons with limited English proficiency.

Ms. Leigh asked for suggestions on how to format public involvement sessions. John Lyons recommended a charrette approach. He also recommended that all advocacy organizations representing special needs populations be targeted as a group. Sue Prosi

¹ Mr. Schulman is a member of the SWRMHB and requested that this affiliation be noted on the record.

recommended a half-day workshop with two or three topics of discussion including ITS. Mr. Lyons suggested that slides illustrating ITS deployments in use at other locations be used to generate discussion.

Ms. Prosi recommended that visualization techniques be used to focus the charrette. She noted that such approach would fit with current trends and outreach techniques likely to be used during the update of the Region's Long Range Transportation. Those present suggested that the following topics be considered for discussion at the charrette: bus and rail; traffic management; parking management; and traveler information.

Mr. Lyons recommended that the Region's senior centers and local chapters of the American Association of Retired Persons also be engaged in the special needs charrettes. He noted that these groups can be helpful as the plan-in-progress approaches implementation.

Ms. Leigh noted that the outreach methods discussed and agreed to at the January 2006 Technical Advisory Committee meeting – namely focus groups for the business community and outreach to system users – also will move forward.

Ms. Leigh shifted the focus of discussion to the matrix screening documents. She noted that the matrices included in the meeting materials reflect the results of screening ITS market packages against the criteria endorsed by consensus at the January 2006 Technical Advisory Committee meeting. She recommended that the market packages with a "Priority for Evaluation" designation of "YES" be modeled to determine costs and benefits of implementation and that those market packages with a designation of "NO" be modeled only if integrated with a "YES" market package. Those present agreed to these recommendations.

Ms. Leigh noted that the matrix screening results will now be incorporated into the Request for Qualifications (RFQ) for the project's evaluation component. She stated that SWRPA will use its standardized RFQ template for procurement. She also recommended that the RFQ present the evaluation and modeling tasks in approved project scope as the preliminary scope of work for procurement purposes. Those present agreed to this approach. In addition, Mssrs. Karukonda, Schulman and Yeosock volunteered to participate with staff in the consultant selection process.

Ms. Leigh stated that a draft RFQ would be presented to ConnDOT for review and approval. Once approval is received, SWRPA will issue the RFQ.

Ms. Leigh then turned the meeting over to Alex Karman to provide an update on the status of the environmental sweep. Mr. Karman reported that he had completed all but one telephone interview. He noted that few communities had conducted extensive pre-deployment evaluation to identify the benefits of ITS or to help prioritize deployments. In many communities, deployments were relatively recent and post-deployment evaluations had not been conducted. One community noted that the "spotty" deployment of ITS makes meaningful evaluation difficult.

Mr. Karman also noted that several communities used approaches to planning ITS deployments that are similar to those used in the South Western Region: Lake County, Illinois, organized and discussed ITS deployments by service area; San Mateo County, California, used a county-wide vision for transportation improvements and extensive stakeholder involvement to set priorities; and Mercer County, New Jersey, used IDAS to evaluate ITS deployments.

Several “lessons learned” were shared. Mercer County stated that IDAS evaluation did not provide a solid foundation for decision-making. Other communities warned against overselling the benefits of ITS, as many of the benefits accrue over time or are of a nature that the results are not visible to system users. Another community noted the importance of selling ITS deployments as an integral part of other transportation improvements, noting that presenting ITS as a stand-alone project makes it an easy target during project selection and budgeting processes.

Mr. Karman noted that a technical memorandum summarizing results of the environmental screen will be available in mid-May. Ms. Leigh noted that the technical memorandum will be distributed to the Technical Advisory Committee by electronic mail once it is available.

Ms. Leigh asked those present if they had any additional comments or questions. Ms. Prosi recommended asking ConnDOT for an update on the status of ITS-related modeling and whether IDAS had been used in conjunction with TRANPLAN. Mr. Lyons recommended that a status report on 5-1-1 and other traveler information initiatives be requested from ConnDOT and TRANSCOM.

Ms. Leigh thanked those present for their attendance. She noted that a meeting summary will be available within seven days, distributed to the Technical Advisory Committee and uploaded to the project webpage. She stated that the next meeting of the Technical Advisory Committee will be scheduled after a consultant is on board and quantitative evaluation is underway.

Meeting Notes

SUBJECT: South Western Region ITS Strategic Plan
Technical Advisory Committee Meeting

DATE: April 13, 2007

LOCATION: South Western Regional Planning Agency

RECORDED BY: John Duesing (CS)

PARTICIPANTS: Alex Karman (SWRPA)
Floyd Lapp (SWRPA)
Susan Prosi (SWRPA)
Louis Schulman (Norwalk Transit)
John Lyons (MetroPool)
Jennifer Strasser (CS)
Dan Krechmer (CS)
Randy Knapick (IBI)

Xx

KEY POINTS DISCUSSED:

Mr. Karman welcomed everyone to the meeting and provided an overview of ITS planning efforts at SWRPA for the past few years.

Ms. Strasser provided a review of the Scope of Work. She also explained the roles of each project participant both within and outside the CS consultant team.

There was a question regarding the types of benefits that IDAS can be used to measure. These include mobility, travel time, reliability, accidents, emissions, agency efficiency, etc. A detailed explanation of the IDAS tool was provided later in the meeting as part of a PowerPoint presentation.

Mr. Knapick provided an overview of the Statewide ITS Architecture. In response, Mr. Lapp inquired about the possibility of Electronic Toll Collection (ETC) in the State of Connecticut. Randy replied that there has been no decision on implementing ETC in the State.

ACTION ITEMS:

The project scope includes up to 10 alternatives for analysis. Mr. Karman asked how difficult it would be to run more than 10 if needed. Ms. Strasser replied that 10 is a high number in comparison to other similar studies conducted by CS. Although it seems there are many ITS strategies to consider, they will be logically bundled together to form a smaller number of actual projects. Mr. Krechmer added that IDAS is capable of testing several scenarios at one time.

Mr. Lapp asked whether recommendations will be made in the Plan to address institutional and political barriers. Ms. Strasser replied that the Policy Plan under Task 8a will address these issues.

Mr. Lapp asked what was going to be included in the Operational Plan. Mr. Krechmer explained that it will lay out the system components and who will be responsible for operations.

Ms. Prosi asked whether TSMO – Transportation Systems Maintenance and Operations (TSMO) will be incorporated in the Plan. Mr. Krechmer replied that IDAS performs life cycle costs and this information will be included. It was mentioned that there are planning requirements that necessitate an inflation factor. Mr. Krechmer indicated that IDAS has this capability.

Shifting back to the PowerPoint presentation, Ms. Strasser provided a review of the typical ITS planning process. IDAS is a tool that provides benefit-cost information to aid in the project prioritization and decision-making process.

Mr. Lapp requested clarification on where Howard/Stein-Hudson comes into play. Ms. Strasser replied that their primary role will be to ensure all documents are consistent with stakeholder interests. They will assist with presentation, outreach, and written materials throughout the project.

There was discussion about the ConnDOT travel demand model concerning the age of the data and possible inconsistencies within the model. Mr. Krechmer asked if CS could be provided with some recent count data to help correct for any inconsistencies between actual volumes and modeled volumes. He also requested that the TAC provide a description of current traffic patterns for the key locations in the study area. The TAC's input is important to make sure the model is reflective of traffic patterns in these areas. Mr. Karman replied that he will look into getting this information to CS.

Send permanent count data in study area to CS (SWRPA).

Mr. Lyons asked whether the inputs and results will be compared to other peer groups. Ms. Strasser responded that there is an up-to-date FHWA ITS benefits database used within IDAS. The values that will be selected for the SWRPA analysis will be those that most closely reflect local conditions. Mr. Karman added that peer groups have been identified as part of a prior effort and he will pass along this information.

Send peer group information (SWRPA).

Mr. Lyons asked how the travel time savings numbers are developed. Mr. Krechmer explained that IDAS calculates travel time savings in minutes, multiplies that by the local value of time, and converts it into travel time savings in terms of dollars.

Mr. Schulman mentioned that the increased speed in travel time might be better indicator from a transit perspective in terms of schedule adherence.

Ms. Strasser began discussing the data needed for the IDAS analysis. CS is already in possession of the demand model for the purposes of a separate contract with ConnDOT. Ms. Strasser will provide information about this project to her counterpart so he can obtain permission from ConnDOT for use of the model on this project.

Ms. Strasser stated that an inventory of current and planned ITS projects is needed for the analysis. It is important to reach out to both ConnDOT and the local towns (for smaller signal projects, etc.). The data should include an inventory of the system, age of equipment, and operational/maintenance costs. Mr. Karman suggested that he compile a list of contacts for data collection and that CS compose a generic letter for requesting data.

Transit Data is also needed. Mr. Krechmer clarified that transit data needed should include schedules, ridership, schedule adherence, hours of service, and hourly operating costs if available. Ridership data over time by route is also desirable, if possible for an existing year. Mr. Schulman stated that an estimate can be provided but is not performed for each route annually.

Mr. Schulman explained that CT Transit is a fixed service whereas Norwalk Transit service is a more complex system where it provides paratransit, station feeder services, etc.

Mr. Schulman inquired how IDAS handles transit, (i.e., if IDAS is able to show increases in ridership). Mr. Duesing and Ms. Strasser responded that while this could be handled as a demand model issue it would probably be more effective to handle it offline, (i.e., outside of the ConnDOT Model in a pivot point model). Mr. Duesing provided an example of how this was done for the Rockland County Route 59 Transit Study, which looked at ITS treatments and their impact on ridership.

[Break for lunch at noon.]

Ms. Strasser began the second half of the meeting by laying out the goal for the rest of the meeting, which was to conduct a working session to develop the list of 10 alternatives for analysis. Ms. Strasser started off by handing out a matrix of 70 ranked market packages (posted on SWRPA's website) and reviewing the process that SWRPA has gone through to get to this point.

Mr. Karman asked a question regarding private sector involvement in the funding of ITS market packages. Mr. Knapick responded by describing that the potential for private sector involvement has been over exaggerated. ITS is implemented because there is an operational transportation problem to address and it is difficult to get a private investor to commit. Mr. Krechmer followed up by indicating that the one promising private sector market has been cell phone probes, where the data can be purchased from private companies.

Request permission for model files from ConnDOT (CS/SWRPA).

Compile list of contacts for data collection (SWRPA).

Compose a data request letter (CS).

Mr. Schulman inquired about the number of market packages listed in the handout. Ms. Strasser explained that there are 85 individual market packages in the matrix: 51 “must have” strategies, 19 desired items that are not quite ripe for deployment, and 15 that are not recommended for further evaluation at this time. She added that these packages need to be bundled into projects.

Given the large number of items in the matrix, the TAC agreed that the best approach for this meeting is to brainstorm the most pressing ITS needs without looking at each line item in the list. Each present member of the TAC provided a description of the most pressing ITS needs.

Mr. Schulman stated that Automatic Vehicle Location (AVL) is the most pressing ITS need for transit in the State. This includes traveler information, transit planning, and scheduling/dispatch capabilities. He described the status of some of the statewide ITS implementation efforts regarding transit and paratransit operations. The State awarded a pilot to Bridgeport eight years ago, which is just being implemented now. CT Transit is also trying to implement an AVL system. An electronic payment system, or universal fare card, is included in the “Transit for Connecticut Plan.” Mr. Schulman also mentioned that the BRT System was included in the ConnDOT model for Hartford.

Mr. Karman stated that incident management improvements are needed, specifically in terms of surveillance. He provided background on the status of roadway surveillance in the SWRPA Region. The traffic counting and monitoring capabilities terminate at the State line and at major interchanges. During the Howard Avenue Bridge Collapse, there was not enough data to provide diversion routing via Variable Message Sign (VMS). Diversion planning and bridge monitoring are two other important areas of concern.

Ms. Prosi added that traveler information component of incident management needs to be improved. The HAR system needs to be enhanced so that it operates more effectively. VMS at key decision points are desirable, including advance signage in New York State for motorists heading to the area. More specific information, (i.e., specific travel times rather than “delays ahead”), is desired for these signs. These resources could also be used as part of a comprehensive construction coordination/work zone program.

Mr. Schulman suggested that an overheight detection system be implemented at the Washington Street Rail Bridge in Norwalk.

Ms. Prosi indicated that traffic signal system improvements are either being implemented or planned on the local level.

Mr. Lapp pointed out the importance of trucks/commercial vehicles in the area and asked about ITS strategies that cater to their needs. Products such as Commercial Vehicle Information Systems and Networks (CVISN) would be carried out at the State level rather than regionally. A Statewide initiative regarding Parking Information Systems at rest areas/truck stops is also underway.

The group then discussed how to go about grouping the market strategies into alternatives for testing. Consideration was given to testing the strategies as one large integrated corridor such as the Route 7 Corridor. Other possibilities were mentioned such as grouping them into traffic and transit alternatives.

Mr. Lapp asked if CS, based on experience, is aware of technologies that are proven and successful. Mr. Krechmer responded by indicating that CS has performed several strategic planning efforts and can recommend ways of packaging alternatives for testing.

Provide sample methodology for converting market packages into alternatives (CS).

Mr. Lapp stated that this is probably the best way to proceed and inquired as to the schedule of our next meeting. Mr. Karman estimated the next meeting would be in June. Ms. Strasser added that we will want to meet once the IDAS analysis is underway to ensure the results of the testing can be discussed.

Ms. Prosi brought up the issue of Public Involvement and believes stakeholder outreach to ConnDOT is needed. She indicated that SWRPA has some extra money to spend in this area. It would be appropriate for these funds to be used for stakeholder education in support of this project. For example, they could be used to develop and conduct a presentation to ConnDOT and FHWA. CS indicated they would work with SWRPA to develop an approach and an estimate for the enhanced stakeholder work with the State.

Define new scope of work for outreach activities (SWRPA/CS).

Mr. Lapp made a motion to dismiss and the meeting was adjourned by Mr. Karman.

Compile meeting notes and send PowerPoint presentation (CS).

South Western Region ITS Strategic Plan Meeting of the Technical Advisory Committee

South Western Regional Planning Agency
888 Washington Boulevard, 3rd Floor
Stamford, CT 06901

June 19, 2008, at 11:00 a.m.

MEETING SUMMARY

Present: Nate Clark, Cambridge Systematics (via phone); Garo Garabedian, Greenwich; Alex Karman, SWRPA; Daniel Krechmer, Cambridge Systematics (via phone); Floyd Lapp, SWRPA; Susan Prosi, SWRPA; Chris Ryan, Howard/Stein-Hudson Associates; Jennifer Strasser, Cambridge Systematics; Michael Yeosock City of Norwalk.

Meeting Summary: Mr. Alex Karman called the meeting to order at 11:05am. The meeting was held at the South Western Regional Planning Agency office.

Ms. Jennifer Strasser began her presentation by giving an overview of the IDAS model. She explained that IDAS was developed by the Federal Highway Administration (FHWA) as a sketch planning tool to estimate costs and benefits of ITS deployments. She added that IDAS functioned as a post processor to a standard travel demand model. She provided a sample screen shot of the application for the benefit of the Technical Advisory Committee (TAC). She listed some of the costs and benefits computed by the IDAS model.

Ms. Strasser explained that in order to undertake this study, the consulting team needed to import ConnDOT's travel demand model. She indicated that ConnDOT uses a daily model rather than a peak period model, which might return more conservative estimates of benefits from ITS deployments. She explained that model results were validated against continuous count station data for highways in the South Western Region. She reviewed the economic parameters, developed by IBI group, that were input in the model. These economic parameters include the value of time, accident cost, emission cost, and operating costs. After some discussion about the volatility of gasoline prices, Ms. Strasser indicated she would explore the possibility of developing benefit cost comparisons for several different scenarios.

Ms. Strasser presented preliminary results for each of the ITS strategies evaluated. She explained that integrated corridor management (ICM) strategy for CT 15 showed positive benefits while the ICM strategy for US 1 had a benefit-to-cost (B/C) ratio below 1. She attributed the low B/C ratio for the US 1 strategy to smaller daily traffic volumes on US 1 vs. CT 15. She added that she would adjust the model inputs to try to improve the results. She explained that the Stamford real-time travel information strategy and the Norwalk incident management strategy both showed a high B/C ratio, due in large part to their low annualized costs.

Ms. Strasser asked the TAC for input on the preliminary modeling results and the study's next steps. Ms. Susan Prosi suggested several opportunities for using the model results to justify projects for funding or implementation. Ms. Prosi suggested that the consulting team should include in the final report a reference to updating the State's ITS architecture to be consistent with the recommendations in this study.

Mr. Karman requested that the consultant include a section in the final report documenting best practices in the relationship between local municipalities and state agencies in regards ITS data sharing.

Mr. Karman explained that beyond the evaluation of ITS strategies, the consultant team would be undertaking a public participation process to engage stakeholders. Mr. Christopher Ryan indicated that Howard/Stein-Hudson would be developing several factsheets targeting both technical and non-technical audiences. He explained that a number of stakeholder meeting were being planned for the fall and that the meetings would be tailored to a particular audience (technical staff, elected officials, etc.) He explained that it was important that the public participation process be transparent so that participants feel that their input matters to the outcome of the plan.

The meeting adjourned at 12.30pm.



South Western Regional Planning Agency
Stamford Government Center
888 Washington Boulevard, 3rd Floor
Stamford, Connecticut 06901
203 316 5190 Phone
203 316 4995 Fax
www.swrpa.org

South Western Region ITS Strategic Plan Meeting of the Technical Advisory Committee

Darien Town Hall
2 Renshaw Road
Darien, CT, 06820

October 16, 2008, 9.45am

AGENDA

1. Introduction and Project Background
2. Project Status
 - a. Statement of ITS policies
 - b. Project fact sheet
 - c. Final report (draft)
3. Public Outreach Meetings
 - a. October 16, 9.45 am – SWRPA TTAG
 - b. October 21, 10.00 am – ConnDOT
 - c. October 27, 8.15 am – SWRMPO
4. Next Steps

Transportation Technical Advisory Group
October 16, 2008
Meeting Minutes

TTAG: Mr. Garo Garabedian, Greenwich DPW; Mr. Jeremy Ginsberg, Darien Planning and Zoning; Mr. Josh Lecar, Stamford Planning and Zoning; Mr. Veera Karukonda, Stamford Bureau of Operations; Mr. Mani Poola, Stamford Bureau of Operations; Mr. Peter Ratkiewicz, Westport Engineering Department; Mr. Louis Schulman, Norwalk Transit District; Ms. Daphne White, Wilton Planning & Zoning; Mr. Michael Yeosock, Norwalk DPW; Mr. Bud Titsworth, Westport Transit District; Ms. Sue Prosi, Mr. Alex Karman and Dr. Floyd Lapp, SWRPA.

Ms. Sue Prosi called the meeting to order at 10:00 a.m. The meeting was held in Darien Town Hall, Room 119, 2 Renshaw Road, Darien.

1. TTAG Meeting Summary September 12, 2008

Mr. Garabedian made a motion to approve the summary of the June 12, 2008 meeting. Mr. Titsworth seconded the motion. The motion carried unanimously.

2. Public Involvement

No members of the public were present.

3. FY2007-2011 Transportation Improvement Program

Only one new TIP amendment was requested by ConnDOT, described by Ms. Prosi and discussed by the TTAG for SWR TIP #2008-008.

Project OCTH-XXXX

FTA Section 5307 FY2009 \$19,708,000 federal \$4,927,000 state \$24,635,000 total

The project will fund replacement of buses that have reached their useful life of 12 years. The estimated cost per bus is \$400,000. The TIP amendment reflects the increase in the per bus cost due to cost of living and new EPA emissions standards effective in 2010. FTA FFY2008 carryover and FFY2009 funds will be used.

Requested Transit Amendments (SWR TIP#2008-008)

FACode	Proj#	Rte/Sys	Town	Description	Phase	Year	Tot\$(000)	Fed\$(000)	Sta\$(000)	Comments
5307P	OCTH-1006	CT Transit	Systemwide	CT Transit Systemwide Bus Replacements - FY2009	ACQ	2009	24,635	19,708	4,927	Include in all CT Transit service regions

During discussion of the project, TTAG members asked:

- whether the state match is in place or if it requires action by the State Bond Commission (ConnDOT later advised that the state match is in place); and,
- if the buses ordered would be all diesel or if there would be any hybrids and, if so, the mix (ConnDOT advised that it expects *the bus purchase to be for ultra low sulfur diesel vehicles.*)

Pending TIP actions and amendments included in the meeting packet were referenced, but not discussed.

The TTAG recommended MPO approval of the amendment using ***Resolution #2008-017: Resolution to Endorse the South Western Region FY2007-2011 Transportation Improvement Program Amendments and Actions.***

4. STP Program Status

Ms. Prosi referred the TTAG to the ConnDOT STP Regional Summaries dated October 2, 2008. A meeting of the STP Working Group will be arranged to review projects, schedules and programming to update the STP Programming Guide. Viable projects are needed for FFY2009. The TTAG was encouraged to consider possible STP projects.

5. South Western Region ITS Strategic Plan

Mr. Alex Karman presented an overview of the South Western Region ITS Strategic Plan. He indicated the consultant portion of the plan was nearly finished and that a number of technical products were near completion, including a statement of ITS policies, final report, and a study fact sheet, which was shared with attendees. He explained that a limited number of public outreach meetings were planned, notably a presentation to ConnDOT on October 21, 2008.

Mr. Ginsberg inquired whether the Merritt Parkway Conservancy had weighed in on the plan's Merritt Parkway ITS strategy. Mr. Karman responded that Merritt Parkway Conservancy had not yet weighed in but that he believed the proposed ITS strategy would be both beneficial and appropriate to the Merritt Parkway. Mr. Lecar inquired whether any off-expressway deployments had been considered. Mr. Karman responded that one off-highway ITS strategy was evaluated and that further study of this strategy was necessary. Mr. Lecar commented that the plan may understate the benefits of the ITS deployments because the ConnDOT travel demand model does not include local roads. Mr. Karman concurred, noting that the consultant expressed similar sentiments.

6. Bicycle and Pedestrian Planning Update

Mr. Karman explained that ConnDOT, with the help of a consultant, is updating the Statewide Bicycle and Pedestrian Plan and Map. He presented the plan goals and action strategies, noting that many representatives of the plan's steering committee had strong differences with ConnDOT on the language used. He explained that the study team held a public outreach meeting in Stamford on October 7, 2008 to introduce the study, present the goals and action strategies, and describe the suitability analysis used to update the map. He indicated that a second public meeting would be held next spring to present a more complete version of the plan.

Mr. Lecar commented that he would like the plan to include case studies of successful bicycle and pedestrian projects in Connecticut, which he has observed in other, successful bicycle and pedestrian plans. Ms. Prosi commented that ConnDOT had done a good job with the project website. Ms. Daphne White inquired whether this plan would include additional funding for bicycle and pedestrian facilities. Ms. Iezzi responded that only existing funding sources, such as enhancements, were anticipated. She added that many bicycle and pedestrian projects used a medley of funding sources including funds from sources other than transportation. Ms. Prosi indicated that the region's transportation enhancement funds would soon need to be obligated and that it was likely some portion of the funds would go towards bicycle and pedestrian projects.

Mr. Karman explained that work on the South Western Region Bicycle and Pedestrian Plan continued. He explained that safety data is being analyzed to locate bicycle and pedestrian crashes on state highways. He indicated that a meeting of the South Western Region Bicycle and Pedestrian Plan working group was planned for November or December.

7. Congestion Management Process (CMP) Update

Mr. Karman explained that SWRPA had completed its 2008 travel time monitoring program, which is an important part of SWRPA's congestion management process. He indicated that the 2008 program expanded on the initial 2007 program by including CT 15 as well as I-95 and by expanding the study area to encompass the Greater Bridgeport Region as well as the South Western Region. He explained the study method and indicated that in future years, the program will be expanded to cover additional

South Western Region ITS Strategic Plan Outreach Meeting

Connecticut Department of Transportation
Room 1312
2800 Berlin Turnpike
Newington, CT 06131

October 21, 2008, at 10:00 a.m.

MEETING SUMMARY

Present: Mike Connors, Carla Iezzi, Bob Kennedy, John Korte, Paul R. O’Keefe, Joe Ouellette, Judy Raymond, Maribeth Wojenski, ConnDOT; Ted Aldieri, Millie Hayes, Dave Nardone, Robert Ramirez, FHWA; Karen Olson, CRCOG; Mark Nielsen, GBRPA; Mike Yeosock, City of Norwalk; Veera Karukonda, City of Stamford; Dan Krechmer, Cambridge Systematics; Chris Ryan, Howard/Stein-Hudson; Alex Karman, Floyd Lapp, Susan Prosi, SWRPA.

Meeting Summary: Mr. Chris Ryan called the meeting to order at 10.01am. The meeting was held at the Connecticut Department of Transportation, Room 1312, Newington, CT.

1. Introduction and Project Background

Mr. Karman introduced the study and the meeting agenda to the attendees. He presented the study’s purpose and main objectives. He explained that a portion of the study was accomplished by SWRPA and that a consultant had been procured to conduct the evaluation component of the study. He introduced the study team and described their roles.

2. Study Methods and Results

Mr. Karman explained that the SWRPA ITS Technical Advisory Committee (TAC) had identified eight strategies to be evaluated using the IDAS model. He explained that the eight strategies were determined using an iterative process that included input from the SWRPA ITS TAC. He summarized each strategy including the major deployment components, capital as well as operations and maintenance cost estimates, project location, lead agency, project participants, expected benefits, and potential for integration with other projects.

Mr. Dan Krechmer presented an overview of the IDAS model and described how it was used in the study. He explained that public agencies use IDAS to evaluate ITS alternatives based on a variety of criteria and to determine the benefits derived from ITS deployments. He explained that the IDAS user interface allows modeler to code individual deployments onto a travel demand model network at specific locations. He indicated that for this project, the use of the ConnDOT travel demand model, which is a daily model, probably yielded more conservative benefit estimates than would have a peak period model. He indicated that the model results were validated against traffic counts for several locations.

Mr. Krechmer presented the results from the IDAS model. He presented the economic parameters used in the model noting that the numbers were based on national averages and the study team’s prior experience. He explained that six of the eight strategies yielded positive benefit-cost analysis while two strategies did not. He added that the six strategies yielding greater benefits than costs were likely realized through improvements to user mobility. He indicated that the two strategies that yielded lower benefits than costs

were the Integrated Corridor Management-2 US 1 strategy and the Transit Signal Priority-1 US 1 strategy. He suggested that the low traffic volumes, low speeds, and high capital costs resulted in higher costs than benefits for those two strategies.

3. Study Feedback

Mr. Ryan presented a series of questions to the attendees in order to obtain their feedback on the study. Ms. Karen Olson inquired whether the benefits derived from the transit strategies are realized by transit or automobile travelers. Mr. Krechmer explained that the benefits expressed in the study would be realized by transit travelers but that automobile travelers should stand to realize some benefits as well. Ms. Susan Prosi commented that the GBTA AVL project had a higher cost than the AVL strategies included in the study, to which Mr. Mark Nielsen concurred. Ms. Prosi commented that it is difficult to imagine any project being completed in a timely fashion on the Merritt Parkway.

Mr. Bob Kennedy inquired whether there was a project implementation schedule. Mr. Karman responded that some work had been done on implementation planning but that there was not a detailed schedule. Mr. Nielsen inquired whether the study was proposing eight projects or in fact a greater number of projects, adding that the study should consider how to phase the strategies over time. Mr. Karman responded that it would undoubtedly take more than eight projects to implement all of the study's recommendations. Mr. Nielsen commented that capital cost estimates seemed low. Mr. Dave Nardone inquired whether the estimated costs included preliminary engineering. Mr. Krechmer responded that planning and engineering costs were included in the cost estimates.

Mr. Kennedy suggested that the Merritt Parkway Conservancy would not be receptive to the CT 15 strategy and that regardless, the tree cover and poor sightlines made this strategy a difficult prospect. Ms. Prosi commented that innovations in technology may overcome current physical limitations on ITS along CT 15. Mr. John Korte inquired as to what kind of communication was considered to effectuate the recommendations. Mr. Krechmer responded that the plan recommended the use of leased communication lines from a vendor. Ms. Prosi commented that there was very little funding available to implement these recommendations. Mr. Korte commented that ConnDOT's top priority was maintaining the existing ITS deployments on I-95 in a state-of-good-repair. He added that ITS deployments on CT 15 were a good idea but that there were obvious difficulties with any deployment. Mr. Kennedy commented that ConnDOT had a mandate to deploy ITS on limited-access highways before deploying ITS on arterials. Mr. Nielsen commented that given funding limitations, maintaining the ITS deployments on I-95 in a state-of-good-repair should be the priority.

Mr. Robert Ramirez commented that FTA should be brought into the discussion since some of the strategies involved transit. He added that FHWA was no longer in the business of building new freeways and that ITS was a good way to address safety and mobility issues. He added that it was a good idea to get people to the table and that every year without ITS deployments on our highways is a loss. Mr. Korte registered his concern about the Norwalk Incident Management System strategy, noting ConnDOT was concerned with the high maintenance cost. Mr. Mike Yeosock responded that the City of Norwalk was prepared to take full responsibility for the maintenance of the signs. Ms. Prosi commented that the AVL needs to expand beyond a pilot project for one transit agency.

Mr. Kennedy summarized ConnDOT's most significant ITS projects currently in planning or design: 511 traveler information, a project to share highway video with local municipalities, and a project to maintain existing infrastructure on I-95 in a state-of-good-repair. Mr. Ramirez inquired as to how the costs for the project were determined. Mr. Krechmer responded that the annual cost was a blend of the annual operations and maintenance cost and the amortized cost of the capital purchase. He added that Connecticut's ITS architecture would need to be updated to include these recommendations, noting that

FHWA requires that ITS deployments are identified in the ITS architecture. Ms. Prosi commented that it was ConnDOT's responsibility to update the architecture.

4. Discussion of ITS Policies

Mr. Ryan ran the attendees through a series of exercises designed to draw out the necessity of and benefits derived from data sharing as it relates to ITS. The questions and responses are summarized below:

- *What data would you like to share and for what purpose?*
Traffic volumes, camera images, travel time, multimedia, bus on-time performance, delays, planned construction/detours.
- *What are the benefits of data sharing?*
Reduced congestion, improved air quality, happy riders/people, project cost savings, improved travel demand model, verification of existing travel demand model, identifying locations for projects/improvements.
- *What are the barriers to data sharing?*
Access, incompatibility, institutional barriers, resources (money and human), willingness to share, lack of architecture and planning, fear, legal barriers, project design, priorities.
- *What steps are necessary to overcome these barriers and achieve benefits?*
Openness to discussion, simply talking, talking to the right people, bringing the right people to the table (decision makers and stakeholders), legal mechanisms.

Mr. Ryan inquired whether there was a forum to discuss issues like data sharing or ITS. Among the various suggestions were: MPO technical committees, SIMTF, TIAs, and TSB. Dr. Floyd Lapp commented that the TIAs and TSB did not meet often enough to conduct much business. Mr. Ryan inquired whether anyone had any comments on the issue of local access to state traffic cameras. Mr. Korte commented that ConnDOT's crescent system would soon be up on the internet, that there had been some difficulties implementing the system, and that it would be possible for other agencies to add it to their website. He added that ConnDOT wanted to share more data with first responders than it currently is capable of doing. He added that two MPO still needed to endorse the project. Ms. Prosi responded that first responders are using the system in its current state and questioned whether the project would be worthwhile or outmoded when completed.

5. Next Steps

Mr. Karman explained that this meeting was one in a series of public outreach meetings. He explained that SWRPA had met with the ITS TAC and SWRPA technical group and would soon meet with the South Western Region MPO. He indicated that the recommendations from this plan would be integrated into the next update of the South Western Region long range transportation plan.

The meeting adjourned at 11.46pm.

**South Western Region
Metropolitan Planning Organization
October 27, 2008
Meeting Minutes**

Chief Elected Officials:	Hon. Jeb Walker, New Canaan; Hon. Gordon Joseloff, Westport; Hon. Woody Bliss, Weston; Hon. Bill Brennan, Wilton; Hon. Peter Tesei, Greenwich; Hon. Richard Moccia, Norwalk; Hon. Dannel Malloy, Stamford; Hon. Evonne Klein, Darien
Transit District Officials:	Mr. Louis Schulman, Norwalk Transit District; Mr. Bud Titsworth, Westport Transit District
Official Voting Members:	Mr. Mani Poola for Mayor Dannel Malloy, Stamford and Stamford Transit District;
Official Non-Voting Members:	Mr. Paul Settlemeyer, SWRPA Chairman
SWRPA:	Dr. Floyd Lapp, Executive Director; Ms. Sue Prosi, Senior Regional Transportation Coordinator; Mr. Craig Lader, Sr. Regional Planner; Mr. Alex Karman, Sr. Regional Planner
ConnDOT:	Mr. Joseph Marie, Commissioner; Mr. James Boice, Deputy Commissioner; Mr. Jeffery Parker, Deputy Commissioner; Mr. Albert Martin, Deputy Commissioner; Ms. Pam Sucato, Legislative Liaison; Ms. Carla Iezzi, Field Coordinator
Other:	Mr. Maury Johnson, AARP; Mr. John Hartwell; Mr. Martin Cassidy, Stamford Advocate; Mr. Art Glowka, Stamford resident; Chief Denis McCarthy, Norwalk Fire Department.

Mr. Woody Bliss called the meeting to order at 8:17 a.m. The meeting was held at the Norwalk Transit District.

1. Approval of Minutes of SWRMPO Meeting of September 22, 2008

Mr. Jeb Walker made a motion to approve the minutes of the September 22, 2008 meeting. Mr. Louis Schulman seconded the motion, which carried unanimously.

2. Transportation Technical Advisory Group Meeting of September 12, 2008

Ms. Sue Prosi stated that projects eligible for FTA Section 5307 Enhancement funding are being solicited in the Bridgeport/Stamford Urbanized Area. The City of Stamford and Norwalk Transit District are eligible recipients, and Norwalk Transit District has agreed to work with interested municipalities on eligible projects. Ms. Prosi indicated that there specific efforts to enhance rail stations, and such improvements would only require a 5% local match. Ms. Prosi also noted that SWRPA is meeting with municipalities to discuss a draft version of its Rail Parking Study. Meetings with Chief Elected Officials will be scheduled in the coming months after preliminary meetings with staff to discuss the draft report.

3. Public Involvement Session

Mr. Maury Johnson provided notice of an AARP meeting scheduled for November 6, 2008 which will assess the 2008 election results.

4. FY 2007-2011 Transportation Improvement Program

Ms. Prosi described the proposed TIP amendment for the purchase of CT Transit replacement buses. The buses are replaced on a 12 year cycle, and average approximately \$400,000 per vehicle. The vehicles must comply with air quality standards. A motion to approve *Resolution 2008-017 FFY 2007-2011 TIP Amendments and Actions*, was made by Ms. Evonne Klein. The motion was seconded by Mr. Schulman, and carried unanimously.

5. South Western Region Intelligent Transportation Systems (ITS) Strategic Plan Public Information Session

Mr. Alex Karman provided an overview of the South Western Region ITS Plan. Mr. Karman defined ITS as a broad range of wireless and wire line communications-based information and electronics technologies that optimize the transportation system through improvements to safety and mobility and increased capacity and productivity. Mr. Karman provided both local and national examples of ITS that have been deployed across the transportation network, and described the ITS Deployment Analysis System (IDAS). Mr. Karman indicated that a series of ITS strategies were analyzed using IDAS, resulting in a monetary value calculation of net benefits. Mr. Karman indicated that there were six strategies determined to have net benefits, and described the strategies and their advantages. The strategies with net benefits were Integrated Corridor Management on Route 15, Real-Time Traveler Information and Traffic Signal Priority for the City of Stamford, Norwalk Incident Management System, Norwalk Transit District and CT Transit Automated Vehicle Location. There is limited funding available for these initiatives. Comments regarding the historic designation of the Merritt Parkway and potential incompatibility of ITS projects on the facility may be mitigated by the design of the projects and the longer-term benefit of improving highway operations without expansion.

6. 2009 Legislative Program Status

Mr. Craig Lader provided summarized the MPO Legislative Committee teleconference held on October 23, 2008 to develop 2009 legislative priorities. The focus of the legislative agenda is local aid and transportation matters. Budget constraints facing Connecticut necessitate an approach that requests local aid be maintained and adjusted for inflation rather than appeal for larger increases. In addition, some programs pay for themselves through the jobs that are created. The committee wishes to continue to advocate for making the current municipal conveyance tax rates permanent, rather than risking their expiration following FY2010. Transportation matters that will be promoted include sound barriers, improved bus service through implementation of planned improvements in which funding was pulled due to the Governor's deficit mitigation plan, support for the eventual implementation of recommendations derived from the Congestion Pricing Study, expanded hours of operation at highway weigh stations, municipal access to traffic cameras, free access to reverse 911 databases, support for certain approaches to improve/reorganize ConnDOT, and promoting Transit Oriented Development. Mr. Lader also noted that both the legislative committees for the MPO and SWRPA support a singular agenda at the Legislative Breakfast, which is tentatively scheduled for January 8, 2009.

7. MPO Chairman's Report

Mr. Bliss reported there was recently a controlled deer hunt in the town of Weston.

8. SWRPA Executive Director's Report

Dr. Lapp indicated that responses to the Tri-State Transportation Campaign's Transit Oriented Development solicitation were received from Darien, Greenwich and Norwalk (which provided two). SWRPA provided letters of support for each response.



South Western Regional Planning Agency
Stamford Government Center
888 Washington Boulevard, 3rd Floor
Stamford, Connecticut 06901
203 316 5190 Phone
203 316 4995 Fax
www.swrpa.org

QUARTERLY PLANNERS MEETING
Thursday, December 4, 2008, 12:30 – 2:30 P.M.
SWRPA OFFICES

AGENDA

I. 12:30 – 1:30 p.m. MUNICIPAL PLANNERS ROUNDTABLE

- A. AN OPPORTUNITY TO SHARE ISSUES OF MUTUAL CONCERN
OR TO SEEK GUIDANCE FROM OUR PEERS*
 - 1. Market Demand Studies.....Diane Fox, Steve Kleppin*
 - 2. Watershed Planning and Flood Applications.....SWRPA, Municipalities*
 - 4. April Housing Summit Proposal.....SWRPA, Municipalities*

II. 1:30 – 2:00 p.m. REPORT FROM OPM

- A. OPM – Dan Morley*
 - 1. Rationale for 1 Year Extension for Preparing the Next State POCD
Revision*

III. 2:00 - 2:30 p.m. SWRPA

- A. HOUSING CLEARINGHOUSE.....Ben Henson*
- B. SOUTH WESTERN REGION ITS STRATEGY...Alex Karman*

IV. 2:30 p.m. ADJOURN

**Municipal planners are welcome to invite other members of their staff or related agencies who may benefit from this discussion. Just let us know the number of attendees so that the lunch order can be prepared accurately. Thank you for your cooperation.*