

Table 5. Summary of Evaluation Plan for CCTMCC

Impact Area	Hypothesis	MOE	Data Sources	Evaluation Methods
Efficiency	Use of the TMCC results in more efficient trips for human service transportation customers	Passengers per trip	Before and after data in monthly invoices. Agency data and reports	Before/after comparison
		Transit Provider staff opinions on efficiency of demand response schedules	Interviews with Transit Provider staff	Analysis of interview results
Efficiency	The TMCC will increase the number of communities with access to transportation services	Demographic groups with access to transportation services	Agency Reports	Before and after comparison of demographic groups with access to transportation services, including individuals with disabilities, older adults, youth, and persons with limited income.
		Geographic and temporal areas of service coverage	Interviews with Human Service Agency staff Agency Reports	
Efficiency	The TMCC will maximize use of mainstream, lower cost fixed route services where modally appropriate.	Number of rides provided per mode and per provider.	Agency and Brokerage reports	Before and after comparison of trip data.
		Number of modes utilized by the TMCC.	Interviews with Human Service Agency staff	
Cost	System stakeholders perceive that the benefits of the system outweigh its costs	Transit Provider staff opinions on the costs and benefits of the TMCC	Interviews with Transit Provider staff	Analysis of interview results
		Funding Agency staff opinions on the costs and benefits of the TMCC	Interviews with Funding Agency staff	

Impact Area	Hypothesis	MOE	Data Sources	Evaluation Methods
Cost	TMCC costs expended as planned	Planned versus actual design and deployment costs.	Agency reports	Planned versus actual comparison
Coordination	Use of a single system improves communication between diverse agencies	Transit Provider staff opinions on inter-agency communication Funding Agency staff opinions on inter-agency communication	Interviews of Transit Provider staff Interviews of Funding Agency staff	Analysis of interview results Analysis of interview results
	The deployment of the TMCC has streamlined business processes and improved inter-agency collaboration	Service Providers listed in proposal Service providers who signed on to cooperate in the system operation Service providers maintaining an active role in TMCC use or operation	Technical Proposal Interviews of Transit Provider staff and other system stakeholders	Comparison of providers listed in proposal versus those that maintained an active, sustained involvement in the TMCC deployment process. Analysis of commitment letter terms. Analysis of interview results Analysis of surveys
Customer Satisfaction	Consumers are aware of the new TMCC and its' user benefits	Consumer awareness of TMCC.	Passenger surveys	Analysis of interview results Analysis of surveys
Customer Satisfaction	The consumers using the TMCC are satisfied with its performance.	Percentage of users who feel that transportation services are more available.	Passenger surveys Agency complaint data	Analysis of surveys. Analysis of complaint data.
		Percentage of users who feel that access to transportation information is more accessible. Percentage of users who feel that the customer interface(s) used are more helpful.		
Customer Satisfaction	System stakeholders find the TMCC easy to use.	Opinions on ease of TMCC use.	Interviews with stakeholders	Analysis of interview results

Table 6. Qualitative Evaluation Plan for CCTMCC

Impact Area	Hypothesis	MOE	Baseline Data	Evaluation Methods
Efficiency	Use of the TMCC results in more efficient trips for human service transportation customers	Transit Provider staff opinions on efficiency of demand response schedules	Interviews of Transit Provider staff pre TMCC opening	Interviews of Transit Provider staff at 6 mos and 1 year, then annually
Cost	System stakeholders perceive that the benefits of the system outweigh its costs	Transit Provider staff opinions on the costs and benefits of the TMCC Funding Agency staff opinions on the costs and benefits of the TMCC	Interviews of Transit Provider staff pre TMCC opening Phase I focus group with CC Board of Social Services staff	SWOT Analysis with Transit Provider staff at 6 mos and 1 yr SWOT Analysis with CC BSS staff at TMCC opening, 6 mos and 1 yr; then annually
Coordination	Use of a single system improves communication between diverse agencies	Transit Provider staff opinions on interagency communication Funding Agency staff opinions on interagency communication	Interviews of Transit Provider staff pre TMCC opening Phase I focus group with CC Board of Social Services staff	Interviews of transit provider staff at 6 mos, 1 yr after TMCC opening; then annually Interviews of funding agency staff at 6 mos and 1 year after TMCC opening; then annually
Coordination	The deployment of the TMCC has streamlined business processes and improved inter-agency collaboration	Service providers maintaining an active role in TMCC use or operation	Interviews of Transit Provider staff and other system stakeholders: Medicaid providers TBD pre TMCC opening	Interviews of transit provider staff at 6 mos, 1 yr after TMCC opening; then annually
Customer Satisfaction	Consumers are aware of the new TMCC and its' user benefits	Consumer awareness of TMCC.	Passenger surveys/phone survey at 3 mos	Passenger surveys/phone survey at 6 mos and 1 year after TMCC opening; survey question(s) added to existing customer satisfaction surveys
Customer Satisfaction	The consumers using the TMCC are satisfied with its performance.	Percentage of users who feel that transportation services are more available. Percentage of users who feel that access to transportation information is more accessible. Percentage of users who feel that the customer interface(s) used are more helpful.	Street surveys completed during Phase I to measure satisfaction level with current access to information. Phase I street survey/focus group data Agency complaint data	Passenger surveys/phone survey at 6 mos and 1 year after TMCC opening; survey question(s) added to existing customer satisfaction surveys Analysis of complaint data.
Customer Satisfaction	System stakeholders find the TMCC easy to use.	Opinions on ease of TMCC use.	Satisfaction surveys at TMCC opening	Satisfaction surveys ongoing; ask every n th call/web hit to complete a survey

Transportation Consumer Survey

Location	Count	Percent
Camden County College	15	6%
CC Board of Social Services	32	13%
Fairview, Camden City	13	5%
Genesis School of Business	21	8%
North Camden Bus Stops & Streets	8	3%
North Camden community Planning Meeting	6	2%
One-Stop Career Center	57	38%
Rand Transportation Center	11	7%
Respond (Staff, Customers, Neighbors)	88	35%
Grand Total	251	100%

Questions

1. Which transportation services are available for you to use? *(Check all that apply)*

	Count	Percent
Car	87	35%
NJ Transit bus or train	216	86%
Car, van or bus operated by the County	24	10%
Taxi	76	30%
NJ Transit Access Link	20	8%
Church/temple vehicle	12	5%
Other		
PATCO	2	
car pool	1	
relative's car	2	4%
walk or bike	3	
Speedline	1	
SEPTA	1	
work vehicle	1	

2. What are the things you want most from transportation?

Key Words	Count	Pct
on time/reliable	96	37.9%
get from place to place	27	10.7%
safe	23	9.1%
affordable fares	21	8.3%
courtesy	12	4.7%
cleanliness	9	3.6%
busses less crowded	8	3.2%
shelters at bus stops	7	2.8%
quicker time schedule	6	2.4%
good service	5	2.0%
more busses	5	2.0%
busses run more frequently	5	2.0%
benches at bus stops	4	1.6%
seat belts	4	1.6%
comfort	4	1.6%
expanded hours	4	1.6%
heat	3	1.2%
accessibility	3	1.2%
options	2	0.8%
maps/schedules	1	0.4%
up grade busses like in suburbs	1	0.4%
convenience	1	0.4%
expanded routes	1	0.4%
Riverline to extend hours by 2 from Trenton	1	0.4%
	253	100.0%

3. Please rank the following in order of preference for getting information about transportation options. (4=*most preferred*, 3=*preferred*, 2=*might use*, and 1=*would not use*).

	4	3	4&3	2	1	blk	Avg
Telephone & a real person	168	36	204	21	14	12	3.5
Transit schedule brochure available in every day locations	135	46	181	26	18	26	3.3
Internet/website	83	45	128	46	43	34	2.8
Local TV/radio transportation channel	66	43	109	48	58	36	2.5
Local publication (newspaper)	61	60	121	45	44	41	2.7
Mailings	58	50	108	44	64	35	2.5
Counselor/Social Service Worker	54	47	101	43	68	39	2.4
County Calendar	48	41	89	48	69	45	2.3
House of Worship	48	36	84	49	75	43	2.3
Telephone/voice activated	29	38	67	61	82	41	2.1
Other (<i>please specify</i>)							
transit calendar in community centers (1)							
transportation center (1)							
comfort (1)							
my pastor and an honest councilor (1)							

4. Would you consider using a Camden specific website to get information on transportation?

Response	Count	Percent
Yes	153	64%
No	75	31%
blank	23	9%

a. If yes, what types of services and content would be most helpful/valuable to you if offered by a Camden specific website?

	Yes	Pct	No	Maybe	blank
Bus or Train stop locations	208	87%	20	19	4
General trip information (for example, how and where to purchase tickets)	188	78%	28	29	6
Contact phone numbers for transit service providers	177	74%	23	40	11
Trip Fee information	175	73%	33	38	5
Trip planning information	162	68%	34	54	1
Sign up for an e-list that will provide route specific information such as schedule changes, real time vehicle arrival?	131	55%	58	55	7
Sign up to have above information sent directly to your PDA	117	49%	60	56	18
Access to a trip counselor who could help you plan your trip	118	49%	49	68	16
<i>Other:</i>					
maps, itinerary plan, explanations of fare charges, Philly connection (1)					
no computer (1)					
Transportation allowance for drivers that don't own car (1)					
notification by mail (1)					
schedules (1)					

5. Some technologies and services can help make transportation easier to use for customers. Please rank the following according to what you think would make transportation use easier for you (4=most preferred, 3=preferred, 2=might use, and 1=would not use).

	4	3	4&3	2	1	blk	Avg
Shelters at each bus stop	150	36	186	20	21	24	3.4
Safety cameras on all transit vehicles and other surveillance/security systems	146	42	188	15	20	28	3.4
Electronic fare payment which allows you to pay for transit with a single "smart" card	108	53	161	34	29	27	3.1
Information stands/kiosks or LED signage that includes information on routes, transfers, real time vehicle arrival time	94	48	142	44	33	32	2.9
A single point of contact for all transportation information via phone	85	80	165	34	24	28	3.0
Trip planning counselor who could help you plan your trip	82	44	126	57	41	27	2.7
A single point of contact for all transportation information via internet/website	74	67	141	43	36	31	2.8
Annual trip planning workshops held at local libraries and other convenient locations	58	43	101	55	65	30	2.4
<i>Other technologies or services (please specify)</i>							
eliminate fare pmt on bus & set up machines to purchase fare (1)							
seats shelter in audon (1)							
electronic device to make change like in the grocery store (1)							

seat belts should be installed in all bus transportation (1)
 seat belt on buses for children and safety (1)
 seat belts and more buses that runs through (1)
 promptness again (1)
 Cameras at bus stops (1)
 Every train station and every bus stop have shelters + trash cans! (1)

	Yes	Pct	No	blank
Do you use a mobile (cellular) telephone?	192	76%	50	9
If yes, do you use the text message feature?	125	50%	76	50
If yes, do you use the access internet feature?	68	27%	115	68
Do you have cable in your home?	146	58%	85	20

Demographics

Gender	Count	Percent
Female	146	58%
Male	55	35%
blank	17	7%

Age	Count	Percent
0-18	15	6%
19-25	63	25%
26-49	108	43%
50-60	41	16%
60+	14	6%
blank	10	4%

Marital Status	Count	Percent
Single	167	67%
Married	33	13%
Divorced	22	9%
Widowed	10	4%
blank	18	7%

Children	Count	Percent
Yes	148	59%
No	70	28%
blank	33	13%

	Yes	Percent	No	blank
Are you in good health?	209	83%	30	9
Do you have mobility issues?	59	24%	174	15
Do you own a car?	65	26%	178	5
Do you work outside of the home?	150	60%	91	7

Camden TMCC High Level Design Subsystems

The Camden TMCC System High Level Requirements are organized by the four System Needs as follows:

1. One Stop Call Center
2. Seamless Fare and Billing System
3. Coordination of Provider Trip Functions
4. Customer Trip Information
5. Customer Security

Each of the High Level Requirements descends into Detailed Requirements that describe the specific technology which will be attributed to one or more participating agencies. It should be noted that the One Stop Call Center would be the newest one of several key providers that will operate as a part of a federated system.

The physical elements, organized by the specific technology, are described as subsystems that tie back to the requirements and identify the functional processes, providers, hardware and software components. The functionality in each subsystems represents the functions that are expected to be a part of the Camden TMCC.

The provider subsystems also describe the physical locations and personnel involved in the support of the first tier subsystems.

Commercial off the Shelf (COTS) are identified for the software items. All hardware items are considered to be COTS.

Global Positioning Systems/Automatic Vehicle Locator (GPS/AVL) (S3-2)

The GPS/AVL system provides the core subsystem that provides the support for other subsystems including the Mobile Data Computers (MDC), Vehicle Arrival Information Systems, One-Call Center Website, Customer Telephone Alert and Smart Card Fare Payment System.

Functionality

- Event Based Reporting- location of the vehicle is reported with all data transmissions
- Distance Based Reporting- every time the vehicle has moved a pre-determined distance, it automatically reports vehicle location to the Host AVL
- Time Elapsed Reporting- every pre-determined time elapse, the vehicle location is automatically reported to the Host AVL
- Hybrid GPS Reporting- system incorporates the advantages of the three preceding methods

- Polling- all system dispatchers have the capability to request the system to identify the location of any vehicle at any time
- Maximum Report Rate- the maximum location report frequency can be set to conserve air time
- Communication to PDA- enable the bus stop selection screens to be provided to web enabled cell phones, Palm Pilots, Blackberrys and iPhones.

Hardware Components

- GPS Receiver
- GPS Modem
- Existing Dell PC or equivalent computer terminals
- PC for Host Interface Software

Software Components

- Host System Interface Software(Middleware or X-Gate) (COTS)
- Wireless Communication System Interface Software (COTS)
- ESRI Mapping file software (COTS)

Participating Providers, Personnel and Facilities

1. Sen-Han Transit (Phase 1)

- The software components for this subsystem would be located at the Sen-Han Transit central location which would serve all of providers
- A total of 38 vehicles would be equipped with the GPS/AVL hardware required for this subsystem (S3-2.1.1)
- A total of ten (10) workstations would be equipped with the mapping software for participation in the functions of this GPS/AVL subsystem (S3-2.2.1)

2. SJTA (Phase 1)

- A total of 22 vehicles would be equipped with the hardware required by this subsystem (S3-2.1.1)
- A total of four (4) workstations would be equipped with the mapping software for participation in the functions of this subsystem (S3-2.2.1)

3. Faith Based Collaborative (Phase 1)

- A total of 10 vehicles would be equipped with the hardware required by this subsystem (S3-2.1.1)
- A total of four (4) workstations would be equipped with the mapping software required by this subsystem (S3-2.2.1)

4. One-Call Center (Phase 1)

- A total of four (4) workstations would be equipped with the mapping software required by this subsystem (S3-2.2.1)

Mobile Data Computers (MDC) (S3-3)

The MDC enables the transmission and recording of information and data to be transmitted between the driver, the dispatcher and the Routing and Scheduling and Dispatch (RSD) Software reporting system. The MDC subsystem uses the **GPS/AVL Subsystem (S3-2)** as a major component of this subsystem.

Functionality

1. Log-On Functionality

- Automatic Display of drive log-on form upon powering up
- Automatic Display of current odometer reading
- Validation of employee log-on number with RSD software

2. Display Functionality

- Display of connectivity to radio/wireless network
- Display of alert to new message for driver
- Ability to adjust volume and backlighting of display

3. Communications Functionality

- Allow adding, updating and saving trip data without driver intervention
- Allow notification to driver of incoming message by visual and audio
- Allow driver to respond to a message
- Allow driver be notified of success or failure of transmission (send and notify)
- Allow driver to send message only once, whether acknowledged or not (send and forget)
- Allow messages to be stored in a queue and repeatedly attempt to deliver (store and forward)
- Allow pre-defined messages (canned messages) to be received

4. Demand Response Functionality

- Allow the driver to download and store up to 100 rider/trip stops
- Allow the driver to scroll through the manifest to the maximum number of transmitted trips
- Provide the driver with Job List, Job Detail and Job Perform screens providing an overview of job lists, detailed information about each stop and information requests to be completed per Dispatcher instruction

Hardware Components

- Mobile Data Terminal
- Vehicle Logic Unit (VLU)
- GPS Antenna
- Antenna for communication with Host RSD Software
- GPS Receiver
- Wireless Modem
- Mounting equipment, cables and fuses

Software Components

- X-Gate or middleware software for communication between the vehicle GPS unit and the RSD software (COTS)
- Wireless Communication Interface Software (COTS)
- Wireless Data Network Software (COTS)
- ESRI Mapping File software (COTS)

Note: The procurement for AVL and MDC is consolidated and the MDC software components are inclusive of all AVL components

Participating Providers, Personnel and Facilities

1. Sen-Han Transit (Phase 1)

- The software components for this subsystem would be located at the Sen-Han Transit central location which would serve all of providers
- A total of 38 vehicles would be equipped with the hardware required by this subsystem (S3-3.1, S3-3.3, S3-3.4)
- A total of twelve (12) workstations would be equipped with the software needed to communicate with vehicles participating in this subsystem (S3-3.2, S3-3.3, S3-3.4)

2. SJTA (Phase 1)

- A total of 22 vehicles would be equipped with the hardware required by this subsystem (S3-3.1, S3-3.3, S3-3.4)
- A total of four (4) workstations would be equipped with the software needed to communicate with vehicles participating in this subsystem (S3-3.2, S3-3.3, S3-3.4)

3. Faith Based Collaborative (Phase 2)

- A total of 10 vehicles would be equipped with the hardware required by this subsystem (S3-3.1, S3-3.3, S3-3.4)
- A total of four (4) workstations would be equipped with the software needed to communicate with vehicles participating in this subsystem (S3-3.2, S3-3.3, S3-3.4)

4. One-Call Center (Phase 2)

- A total of four (4) workstations would be equipped with the software needed to communicate with vehicles participating in this subsystem (S3-3.2, S3-3.3, S3-3.4)

Routing, Scheduling and Dispatch (RSD) Software (S3-1)

The RSD software is the key component of coordination, facilitating the integration of customer registration, trip reservation, scheduling, dispatching and reporting by participating service providers and the One-Call Center Functionality.

1. Customer Registration (S3.1-2)

- Provide screen that provides for Address information including phone, home address, mailing address and ID numbers
- Provide screen that provides for Passenger Requirements including Passenger category, mobility aid needs, Attendant needs ADA paratransit eligibility category and special assistance notes
- Provide screen that provides for identifying Billing Codes for which the customer is eligible to receive funding for transportation trips
- Provide screen that provides information on passenger home location geocoding

2. Vehicle Management (S3-1.7 NEW)

- Provide screen for identifying available fleet vehicles including seating and wheelchair capacity
- Provide capability for easily adding and removing vehicles from fleet available for trip assignment

3. Trip Reservation (S3-.3)

- System must be able quickly search for customers and create, delete and modify trip reservation
- Scheduling function that allows the user to quickly search among existing vehicle runs to recommend the most efficient time slot to customers
- System should allow the user to book demand response and standing order trips in under 2 minutes
- System should allow return trips to be scheduled as Will Call Return as well as with a designated return trip pickup time

4. Scheduling and Routing (S3-1.4,S3-1.5.1, S3-1.5.2)

- The system should enable both standing orders and demand trips to be scheduled with standing orders providing the framework for the vehicle trip assignment (S3-1.4)
- The system should allow for batch scheduling of all trip reservations by assigning trips to vehicle runs which have locked subscription trips (S3-1.5.1)
- The system should allow for trips to be inserted to vehicles runs in either pickup or drop-off order by the dispatcher or scheduler (S3-1.5.2)
- The underlying scheduling algorithm should generate vehicle runs based on travel times by the area street network and not by triangulation or straight line travel distances (S3-1.5)

5. Geographic Information System (GIS) Mapping (S3-1.8 NEW)

- The routing and scheduling system should be integrated with an industry standard GIS engine
- The GIS should enable the user to use a click and drag or similar method to determine mileage for measured route segments
- The user should be able to window zoom in/out and display landmark names by point and click
- The user should be provided map layers that provide the existing network of fixed rail, bus and modified fixed route area transit services to facilitate connections between demand response and transit services
- Trip origins, destinations and route paths of demand response vehicle runs should be able to be displayed on the GIS map

6. Dispatching (S3-1.6, S3-1.5.2)

- The dispatcher must be able to easily toggle through screens while the customer is on the telephone (S3-1.6)
- The dispatcher should be able to access all vehicle runs and be able to perform trip insertion changes on the vehicle manifests (S3-1.5.2)

7. Billing and Invoicing

- The software must be able to handle a variety of unit cost pricing measures and billing rules (S2-1.1)
- The software shall have the capability of using GIS distance calculation to determine mileage based trip costs (S2-1.2)
- The software shall have the capability of enabling individual trips to be assigned to discrete billing codes (S2-1.3)

- The software shall have the capability of being able to facilitate the calculation of shared costs between billing funding sources (S2-1.3)
- The software shall have the capability of generating a report of the rider trips by funding source (S2-3.1)

8. Reporting (S3-1.9)

- The system shall enable the user to extract client reports based on funding source, destination, customer category, no-shows, cancellations and number and cost of trips
- System shall enable the user to create user designed reports and custom reports

9. Data Base Integration and Expansion Options (S3-1)

- The system should be an ODBC- compliant relational data base with the capability for import/export with other ODBC systems
- The system should be allow for the integration of AVL, MDC, Fixed Route Integration, Interactive Voice Response, ASP options and Internet Deployment

Hardware Components

- Workstations with a minimum speed of 2.8 GHZ, 2.0 GB memory and 80 GB hard drive (Four new workstations for Faith Based and One-Stop)
- Server meeting Microsoft SQL Server Standard
- 100/1000 MB Network

Software Components

- Unified RSD software (COTS)
- ESRI Mapping software (COTS)

Participating Providers, Personnel and Facilities

1. Sen-Han Transit (Phase 1)

- One central location would have the hardware and software components of this subsystem (S3-1)
- A total of twelve (12) workstations would be licensed at this location (S3-1)

2. SJTA (Phase 1)

- One central location would have the hardware and software components of this subsystem (S3-1)
- A total of four (4) workstations would be licensed at this location (S3-1)

3. Faith Based Collaborative (Phase 2)

- One central location would have the hardware and software components of this subsystem (S3-1)
- A total of four (4) workstations would be licensed at this location (S3-1)

4. One-Call Center (Phase 1)

- One central location would have the hardware and software components of this subsystem (S3-1)
- A total of four (4) workstations would be licensed at this location (S3-1)

Vehicle Arrival Information Display at Key Route Locations (S1-1.4)

The provision of expected vehicle arrival information at key on-route locations is a means of increasing customer confidence in using the community transit and traditional transit system. The “next bus” software and display use the **GPS/AVL subsystem (S3-2)** as a major component of this subsystem.

Functionality

- Enables the arrival time of fixed route vehicles to be displayed at key bus shelters, transit terminals and key human service agency lobbies
- Enables the bus screen maps to be displayed on PDA’s such as web enabled cell phones, Palm Pilots, Blackberrys and iPhones

Hardware

- Bus Shelter Display Unit- a weather and vandal resistant light emitting diode display using 110 VAC nominal power with a voice activation feature
- Lobby/Terminal Display Unit- a vandal resistant light emitting diode display using 110 VAC nominal power with a voice activation feature

Software

- Host System Interface Software(Middleware or X-Gate) (COTS)
- Wireless Communication System Interface Software (COTS)
- ESRI Mapping file software (COTS)

Participating Providers, Personnel and Facilities

1. Sen-Han Transit (Phase 3)

- 38 Vehicles with AVL would be potentially in this subsystem (S1-1.4)

2. SJTA (Phase 3)

- 22 vehicles with AVL would be potentially in this subsystem (S1-1.4)

3. One-Call Center (Phase 3)

- Five pilot facilities/transit stops including the One-Stop Center, Cooper Hospital, Rand Transportation Center, Pennsauken Industrial Park and Lindenwold PATCO would be included in this subsystem (S1-1.4)
- The required software components for this subsystem would be located at the One-Stop Center location (S1-1.4)

Telephone System (in design)

Functionality

Hardware Components

Software Components