Prepared for

City of Toledo Ohio
and
Toledo Metropolitan Area Council of Governments

Toledo to Detroit Rail Study: Business Plan Scope of Work

TEMS

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1. Scope of Work

Task 1: Goals and Objectives

The purpose of this study is to evaluate the potential for passenger rail service from Toledo to Southeast Michigan including Detroit, Dearborn, Ann Arbor, and Detroit Airport.

Passenger rail service has become increasingly competitive in Michigan and Ohio, with significant increases in passenger rail ridership since the year 2000. For example, the Chicago-Detroit corridor saw increases of 57% between 2000 and 2011 due to increased highway congestion, increased oil prices, and increased population and household income.

The goal of this study is to evaluate how passenger rail service between Toledo and Detroit will further enhance the economy of both cities and strengthen the economy through better access to the markets, jobs, and income, and the social and leisure facilities of both the Michigan and Ohio regions. It should be noted that this includes not just the Detroit and Toledo regions, but also in the longer term Northern Michigan, Chicago and possibly Southern Ontario. The map below shows the proposed corridor from Toledo to Southern Michigan, with possible connections to Detroit Airport, Detroit, Dearborn and Ann Arbor. This would serve the potential for International air travel, commuting to Southeast Michigan and Detroit, as well as recreational and leisure travel to Southern Michigan and the Michigan Peninsula once train service begins in the A2TC corridor.

Proposed Corridor

To meet this need TEMS will use its RightTrack™ Business Planning System to provide a fully documented analysis of the corridor opportunity. The RightTrack™ has been successfully used in over 100 Passenger Rail Corridor Studies to provide Market Analysis, Route and Technology Assessment and Financial and Economic Analysis. Using this approach, TEMS will develop a Study Work Plan reflecting the study goals and objectives.

TASK 2: DATABASE DEVELOPMENT

The data assembly will be oriented toward the specifications of three major data systems. They include –

- Market database
- Engineering database
- Technology database

MARKET DATABASE

The market database will consist of three components – origin/destination data, socioeconomic data, and network data.

ORIGIN/DESTINATION DATA - As part of the original Ohio Hub and Midwest Regional Rail Study, as well as the more recent Chicago-St. Louis, Chicago-Detroit, Chicago-Ft. Wayne Columbus, and Chicago-Twin Cities, and Ann Arbor to Traverse City studies, TEMS developed a comprehensive origin/destination database for Ohio and Michigan. The data are for travel by air, rail, bus and auto and are on a trip-purpose basis (business, commuter and social / tourism). The data are aggregated on a county level in rural areas and a sub-city (TAZ) level for most urban areas. For this study, the data will be refined to ensure it properly reflects 2018 travel demand in the study corridors. It is anticipated that the study will have about a 100 zones.

SOCIOECONOMIC DATA - As part of the Ohio Hub and Midwest Regional Rail Study and other more recent studies an extensive socioeconomic database was developed for Ohio and Michigan. The data was developed from Federal BEA data, as well as Woods and Poole socioeconomic forecasts and contains population, employment and income forecasts on a county basis. These will be reviewed and adjusted to the proposed zone system to provide an effective database for the proposed corridors.

NETWORK DATA - Comprehensive modal networks will be developed for each mode of intercity travel (auto, air, rail and bus). The networks, which will identify access and egress times, and costs, will be built for business and non-business travel. A refined set of networks will be developed for the proposed corridors to show the strength of modal competition and connections in the corridor.

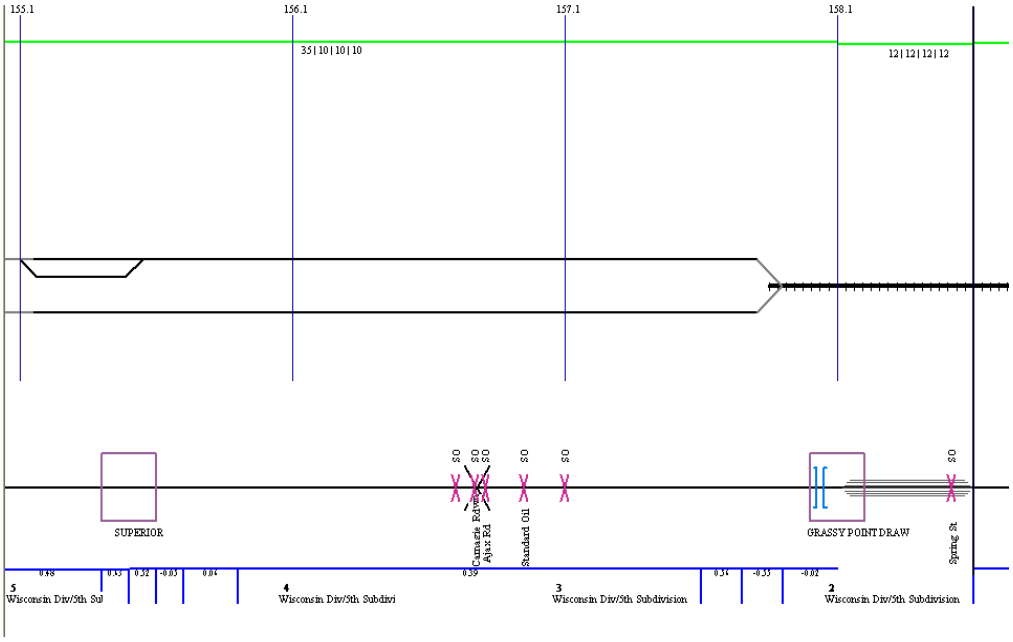
ENGINEERING DATABASE

The engineering database will consider the Toledo-Detroit/Ann Arbor route, and will develop a routing system that provides the most effective transportation links for a passenger rail system.

The corridor has been evaluated previously as part of the MWRRI studies, but needs updating to 2018. As a result, its capital costs, operating costs, and finances and economic benefits are currently unknown and need to be updated. However, previous studies suggest the route is very viable and show real potential for passenger rail.

The TRACKMAN™ Track Management System will be used as in previous MWRRI studies to provide a milepost-by-milepost record of the rail gradients and track geometry of the right-of-way. The data will be recompiled from existing sources includes railroad timetables, track charts, ordinance survey maps, and land stat photometry. The data will be reviewed and updated as required. As required, this will be achieved by a field review of the right-of-way and track in the corridor by the TEMS Team. Potential track upgrades and improvements for different passenger rail speeds and operations will be assessed and improvements will be identified and listed. Engineering notes will be developed and entered into the TRACKMAN™ program to provide a clear understanding of basic track conditions, and the upgrades needed to support passenger rail speeds. A sample output from TRACKMAN™ is given below.

***TRACKMAN™* SAMPLE OUTPUT**



TECHNOLOGY DATABASE

The technology database for the passenger rail speed options will be developed by reviewing the results of the different Midwest Regional Rail studies and soliciting information from manufacturers to update TEMS existing databank. It is anticipated that, as in the Midwest Regional Rail Study, and subsequent studies the focus will be on 79 and 110 mph technology.

79 mph

Amtrak

110 to 130 mph

Talgo T21

TASK 3: SERVICE SCENARIOS

Working closely with the TMACOG Project Coordinator, an initial set of passenger rail service scenarios will be defined. The key factors considered in defining scenarios include –

- Train frequency
- Train speed
- Track speed
- Station stops
- Fares

SERVICE CONCEPTS

The TEMS Team will explore opportunities to attract riders and create greater value and revenue. In addressing this issue, the TEMS Team will consider two potential levels of service, each targeted to different traveler needs. These include –

BASE LEVEL SERVICE CONCEPT – a 79 mph service operating within the context of a "stand alone" service. The frequency of train service will reflect weekly levels of commuter, social and business travel. A basic fare (similar to current Amtrak fares) would be established for this service. The base level service provides a platform against which additional speed and frequency improvements can be evaluated in both financial and economic terms.

IMPROVED SERVICE CONCEPTS – service improvements that would be associated with upgraded track and up to 110 mph train frequency and speeds. Improvements would include reductions in travel times, increased frequencies, improved reliability, improved train stopping patterns and higher quality of service. It would also provide for improved transportation access and connections at stations, such as taxis, limos and transit. Fares will be optimized to maximize revenue potential.

TASK 4: INTERACTIVE ANALYSIS

The Interactive Analysis is designed to develop the most efficient and effective alternatives for passenger rail service in the Toledo-Detroit/Ann Arbor rail corridors.

DEMAND ANALYSIS

The introduction of new rail systems, which provide substantially reduced travel times, higher comfort levels, and frequently lower fares has radically changed travel patterns and brought communities closer together. In general, intercity travel is increasing, marked by a substantial increase in travel demand and distances traveled, as well as a significant shift toward rail use as a result of higher gas prices, and increased highway congestion.

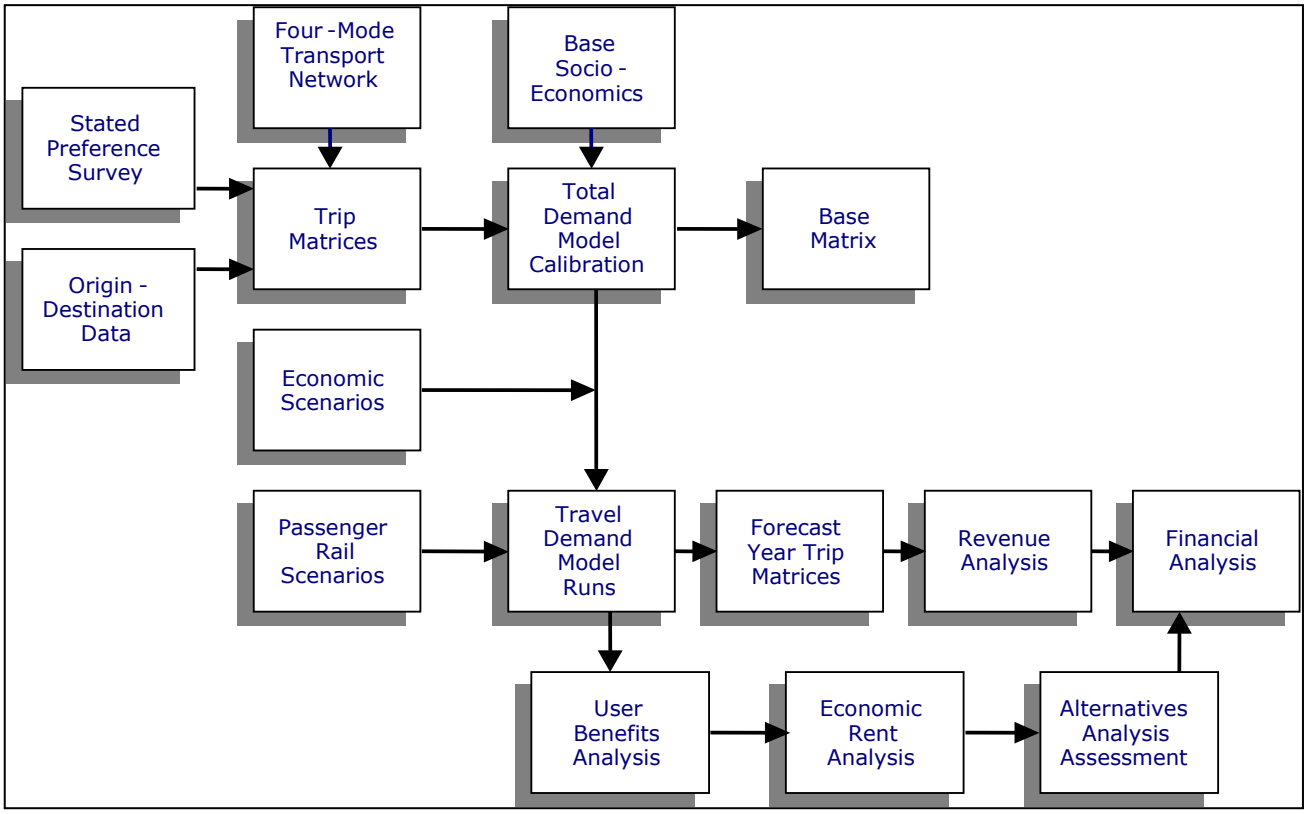
To effectively predict the change pattern and overall rail travel demand levels for new rail systems, models are needed that can accurately forecast the impact of trip making increases and the role of the rail mode. To meet these needs, TEMS developed the COMPASS™ Model System, which is a fundamentally new approach to transportation analysis. It combines existing regional transportation planning techniques with new market research techniques. COMPASS™ has the advantage of having been tested in North America, Europe and Australia on various projects as they progressed from planning, to engineering, to implementation. It provided the foundation for the Ohio Hub, Midwest Regional Rail, and the recent Ann Arbor-Traverse City ridership and revenue forecasts, and has been calibrated to reflect conditions in the Midwest and specifically Michigan and Ohio.

Contrary to conventional methods of analyzing demand on the basis of existing or historical demographic/travel data, the COMPASS™ Model, while including such data in the analysis, subordinates it to a detailed dynamic behavioral assessment of an individual's innate travel characteristics. Using an advanced market research technique, Abstract Mode Trade-Off Analysis, these innate travel characteristics are formulated as preference utilities or demand elasticities, yielding a precise measurement of the responsiveness of travel demand to improvements in the overall level of service and the relative competitive position of alternative modes.

As shown in the exhibit below, the COMPASS™ Model includes three key sub-models –

- Total Demand Model
- Induced Demand Model
- Modal Split Model

COMPASS™ RAIL DEMAND MODEL STRUCTURE



Using the COMPASS™ approach to rail forecasting, the TEMS Team will –

- Eliminate the potential shortcomings of other model approaches, which often rely upon historical data that reflects rail's current negative image and tend to underestimate a new and modern rail system.
- Overcome the propensity inherent in conventional planning models to fail to identify accurately the market share for all modes. Typical models are geared to forecasting the dominant mode (auto) and are frequently biased in their calibration procedures to coefficients and parameters that reflect auto travel. Unless a model explicitly represents the response of individuals to the modes other than auto (rail, bus, and air) differently through model coefficients such as the value of time, it is inevitable that the model will not be able to provide effective rail forecasts.

The basis of the TEMS Team's approach to forecasting the potential for new intrastate passenger rail service will be to treat rail as an enhanced or new mode. The objective will be to focus the analysis on the response to the new mode's performance by taking behavioral attitudes into account, rather than simply extrapolating demand on the basis of historical or current travel relationships. This will allow for a more accurate and realistic ridership forecast. The output of the forecasting process can be used to ensure that the most appropriate route and technology combinations have been obtained and that potential revenue is maximized and capital costs minimized.

RAIL SERVICE ANALYSIS

The determination of appropriate rail service depends on balancing the trade-off between revenues and costs for any given route and associated technology. Higher levels of ridership generate higher revenues, which permit a greater level of infrastructure investment, and thus higher speeds. Lower levels of ridership and lower revenues require that infrastructure investment be minimized and/or the use of more sophisticated vehicles (e.g., tilt technology to compensate for inadequate track geometry).

As a result, the TEMS Team proposes an Interactive Analysis as the most efficient means of developing an appropriate passenger rail service and identifying infrastructure needs.

The Interactive Analysis utilizes a number of computer systems, permitting a rapid evaluation and re-evaluation of route, technology, and/or ridership factors –

- TRACKMAN™ to assess the right-of-way and route improvement options
- LOCOMOTION™ Train Performance Calculator to assess the performance of technologies
- COMPASS™ Rail Demand Model to assess ridership and traffic levels

The result of the Interactive Analysis is an operating strategy for each route/alternative technology option that optimizes the infrastructure, technology and traffic levels.

For the proposed corridor, the first step in the Interactive Analysis is to identify the most appropriate route alignment and train speed. To achieve a desired train speed, the route is examined and specific infrastructure improvements are proposed for each mile of track. For the Toledo-Detroit/Ann Arbor Rail Corridor Study, Ohio Hub and Midwest Regional Rail and other more recent studies in the Midwest unit costs have been used to generate cost estimates for improvements. These will be updated to 2018.

The actual operating speed of the train along the track is calculated using LOCOMOTION™. Output from LOCOMOTION™ will be examined to identify specific bottlenecks, such as bridges, crossings, tunnels and curves that restrict train speeds unnecessarily and reduce the overall timetable performance of a specific technology.

The output of LOCOMOTION*™* provides an assessment of train running times for any given set of infrastructure proposals. By reviewing the timetables, the level of infrastructure improvements can be increased or reduced to meet specific timetable and thus specific ridership needs. In this way, the Interactive Analysis will result in the development of an operating strategy for each right-of-way/corridor and technology that best combines infrastructure requirements, operating speeds and frequencies, and potential ridership.

A sample output from LOCOMOTION™ is given in the following exhibit.

LOCOMOTION™ SAMPLE OUTPUT

LOCOMOTION - Train Performance Calculator

(c) 1990-1995, Transportation Economics & Management Systems, Inc.

Project	Rockford Chicago O'Hare
Corridor	Rockford Airport to Chicago O'Hare
Technology	F40M
Investment	Metra Stock
Date	25-Aug-97
Time	11:15 AM
Maximum Train Speed	79 mph
Acceleration Distance	3 miles
Deceleration Distance	2 miles
Station Dwell Time	2 min
Recovery Time	0 min
Total Journey Time	3:44 hours
Total Journey Length	81.0 miles

Station City	Mile Post	Speed Restriction	Train Speed	Schedule Time	Depar Arriv	Engineering Description
Rockford Airport	0	75	0.0	0:00	Dp	
	1	75	55.5	0:02		
	2	70	70.0	0:03		Airport junct
	3	79	77.9	0:03		
	4	79	79.0	0:04		
	5	79	79.0	0:05		
	6	79	79.0	0:06		
	7	79	79.0	0:06		
	8	79	79.0	0:07		
	9	79	63.0	0:08		
	9.1	60	60.0	0:08		Davis junct-Start
	9.6	60	60.0	0:09		Davis junct-End
	10	79	67.3	0:09		
	11	79	76.7	0:10		
	12	79	79.0	0:11		

It should be noted that the time saved by removing impedance would be different for different train technologies. For example, removing moderate curves is less important than removing bridge speed restrictions for trains with steerable trucks.

Where restrictions are found, TRACKMAN™ will be used to identify the cost of upgrading the right-of-way. By using LOCOMOTION™ and TRACKMAN™ together, a priority ranking of improvements can be developed. This consists of a cost per train travel time minutes saved and cost-per-revenue dollar earned.

The Interactive Analysis will identify key bottlenecks that prevent a given technology from achieving its maximum capability, listing the priorities for each train type, and estimating the civil engineering costs to overcome these bottlenecks. Equally, the analysis will be used to assess the effect of train speed on ridership levels and the cost of aligning the track to avoid locations with important environmental or cultural characteristics. In each case, the required infrastructure improvements will be quantified in terms of the full range of factors that affect infrastructure costs (grading, track quality, signaling, and grade crossing protection).

System Forecasts and Outputs

Using the output from the Interactive Analysis, ridership and revenue forecasts, and operating and capital costs will be generated for each scenario.

Task 5: Market Analysis - Ridership and Revenue Forecasts

Using the service scenarios developed for the Toledo-Detroit/Ann Arbor corridor, total demand and market share forecasts for passenger rail traffic will be prepared for five-year intervals for the study period 2018-2050. To forecast the impact of regional economic growth on total demand, socioeconomic scenarios will be prepared that identify the likely changes in income, population, and employment over the study period.

For rail, the strategies that will be developed include train frequency, commercial speed, stopping patterns and passenger interchange. Using these inputs, as appropriate, alternative strategies will also be prepared for other intercity transportation modes, so that the impact of investment in these modes is incorporated into the overall demand analysis. This task will be carried out in conjunction with the TMACOG project manager.

The rail ridership forecasts will be assigned to show segment volumes, station volumes, and passenger miles and revenues on an annual basis. The forecasts will also be provided on an origin and destination basis and on a corridor, segment, and city pair basis. For each technology option, the rail revenues will be generated. Revenues will be based on a fare/tariff structure, which can be compared with fares and costs of competing traffic (air, auto, and bus). This will ensure that the optimum revenue stream is generated for the rail service, and will provide a basis for considering higher fares and lower subsidies for the passenger rail service. Revenues will be given in 2018 dollars.

Task 6: System Capital and Operating Costs

For each of the technology options, a set of 2018 operating costs will be developed that are based on the operating timetable. The operating unit costs will include the following –

- Track maintenance
- Train crew
- Rolling stock maintenance
- Electrification maintenance
- Signals and communications maintenance
- Energy costs
- Train crew
- Control staff
- Terminal personnel
- On-board services
- Administration

Capital costs for the passenger rail service include cost for rolling stock, as well as infrastructure costs. Rolling stock costs for the various technologies will be obtained directly from equipment manufactures.

As for infrastructure costs, the TEMS Team has a set of unit costs derived from the ongoing studies for the Midwest Regional Rail system, which have been updated to 2018 dollars. It is proposed that these will be reviewed and adjusted to reflect specific conditions in the Toledo-Detroit/Ann Arbor Passenger Rail corridors. The infrastructure cost databank will include unit costs for the following –

- Land and right-of-way
- Sub-grade, structures, and guideway
- Track
- Rolling stock
- Signals and communications
- Electrification
- Demolition
- Stations
- Maintenance and facilities
- Highway and railroad crossings
- Farm and animal crossings
- Pedestrian crossings
- Fencing

TASK 7: FINANCIAL AND ECONOMIC BENEFITS

To provide a clear understanding of the value of different route investments, the TEMS Team will carry out the follow-up analysis –

- Comprehensive financial analysis of fares, operating ratio, subsidies, profit
- Comprehensive user benefits (consumer surplus) and non-user benefits analysis for USDOT and Ohio and Michigan DOTs.
- Community benefits analysis (supplyside)

7(A) FINANCIAL ANALYSIS - The financial analysis will be based on a detailed cash flow analysis of passenger revenues, operating and maintenance costs, and infrastructure and rolling stock costs. The analysis will include the discounting of costs and revenues to an appropriate base year, the establishment of an infrastructure cost implementation program, and the assessment of both Net Present Values and Internal Rates of Return showing the overall worth of the rail service in financial terms.

In addition, a number of ancillary revenue/cost relationships will be defined in the financial analysis, including project profitability (rate of return), operating ratio (cost/revenue relationship), investment standards (investment dollar/passenger mile), and train efficiency (cost/train mile). These will be used to provide a comparative analysis of corridor performance.

7(B) ECONOMIC ANALYSIS OF USER AND NON-USER BENEFITS - In the economic analysis, transportation user costs and benefits will be assessed in terms of increased user benefits (consumer surplus), increased trip making (regional mobility), reduced journey travel times and congestion (travel time savings), and improved quality of service (maximum service levels). The economic analysis will be based on the flow of economic costs and benefits over time and the impact of the proposed rail service on both users and non-users. This analysis will include resource savings, energy savings, accident savings, and producer surplus. The economic benefits and costs will be

discounted to an appropriate base year and evaluated in terms of Net Present Values, Internal Rates of Return, and Cost-Benefit Ratios. The analysis will also include a public sector constrained capital assessment.

7(C) ECONOMIC BENEFITS FOR COMMUNITIES (ECONOMIC RENT) – For the Toledo-Detroit/Ann Arbor passenger rail corridor, a supplyside economic analysis will be completed. This shows the communities along the corridor the benefits they will get from the implementation of the high speed rail corridors. This has been used successfully in the public outreach program to develop community support (e.g., Ohio Hub, MWRRI, Florida Vision Plan and Hampton Roads Vision Plan). TEMS has developed the Economic Rent Analysis as a mechanism for estimating the increase in Jobs, Income, Property Values, and the expansion of the Tax Base, as a result of implementing transportation projects. This is an additional task that TEMS feels essential to the public outreach process. It is essential to get support from Chambers of Commerce, Mayors and Community Leaders. In addition, it is useful to show both the federal and state governments the return they get from increased tax revenues from implementing a project. A recent APTA study completed for the MWRRI using TEMS data showed that the expanded tax base from the project provided a 100 percent return for federal funds, and a 50 percent return for state funds.

TASK 8: FINANCING AND FUNDING ANALYSIS

The TEMS Team will work with the TMACOG Project Manager and Steering Committee to develop financing and funding plans for the rail service. The analysis will consider different ways to generate federal, state, local, and private sector support for the rail service. Specific issues to be considered include –

- Federal and state match
- Local funding of stations
- Private sector roles in provision of services and contracting
- Freight railroad contracting and funding options

The analysis will consider the full range of innovative financing proposed by the US DOT FRA and evaluate the potential roles of grants, TIFIA loans, franchising, GANS and other financial instruments.

TASK 9: IMPLEMENTATION PLAN

Using the outputs of the previous eight tasks, an implementation plan will be developed that sets goals, timetables, and arrangements for implementing passenger rail service in the Toledo-Detroit/Ann Arbor Passenger Rail corridors. The timeline for planning, environmental analysis, preliminary engineering, final engineering, and construction will be set out in a realistic program to show the implementation milestones and the opening year for passenger rail operations. Alongside the physical implementation process will be a second set of milestones that identify the funding needs and institutional framework for developing the system. Action plans for lead agencies, local communities and private sector partners will be identified in the implementation process. A key element of the plan will be the interaction of physical facility provision, funding, and institutional development. The implementation plan will seek to define authority and responsibility for ensuring the success of the development process. The implementation plan will recommend an action program that sets out the steps that need to be followed to ensure the successful implementation of passenger rail in the Ohio/Michigan corridor.

TASK 10: BUSINESS PLAN

A Business Plan report will be prepared describing databases, research methods, ridership and revenue forecasts, results of the financial and economic feasibility analyses, proposed institutional framework, financing and funding arrangements, and implementation plan. The report will describe the study results in the context of

a corridor implementation program and make recommendations to the Steering Committee for maximizing the benefits of a passenger rail service in the Toledo-Detroit/Ann Arbor corridors.

DELIVERABLES

The TEMS Team will provide the following deliverables for the study –

- Ridership and Revenue Forecasts
- Corridor Engineering and Environmental Review
- Operating Schedules and Timetables
- Implementation Plan
- Financial/Funding Plan
- Business Plan
- Project Progress Presentations (PowerPoint)
- Summary Report
- Technical Report and Appendices

MEETINGS

The TEMS Team will attend two meetings and make a PowerPoint™ presentation to the Study Steering Committee. The meetings have been scheduled at key decision-making point to ensure that the Project Manager and Steering Committee fully understands and approves the work. The two meetings are as follows –

- Kick off Meeting – end of week 2
- Implementation Plan and draft Business Plan report – end of week 12

2. Project Organization and Management

TEMS has brought together a team of transportation planners and engineers whose expertise and knowledge will ensure that the Business Plan for Passenger Rail Service in Ohio and Michigan corridors will be both visionary and practical. The TEMS Team has extensive experience with regional and corridor business plans for passenger rail and has worked extensively on the development of passenger rail plans, and implementation programs.

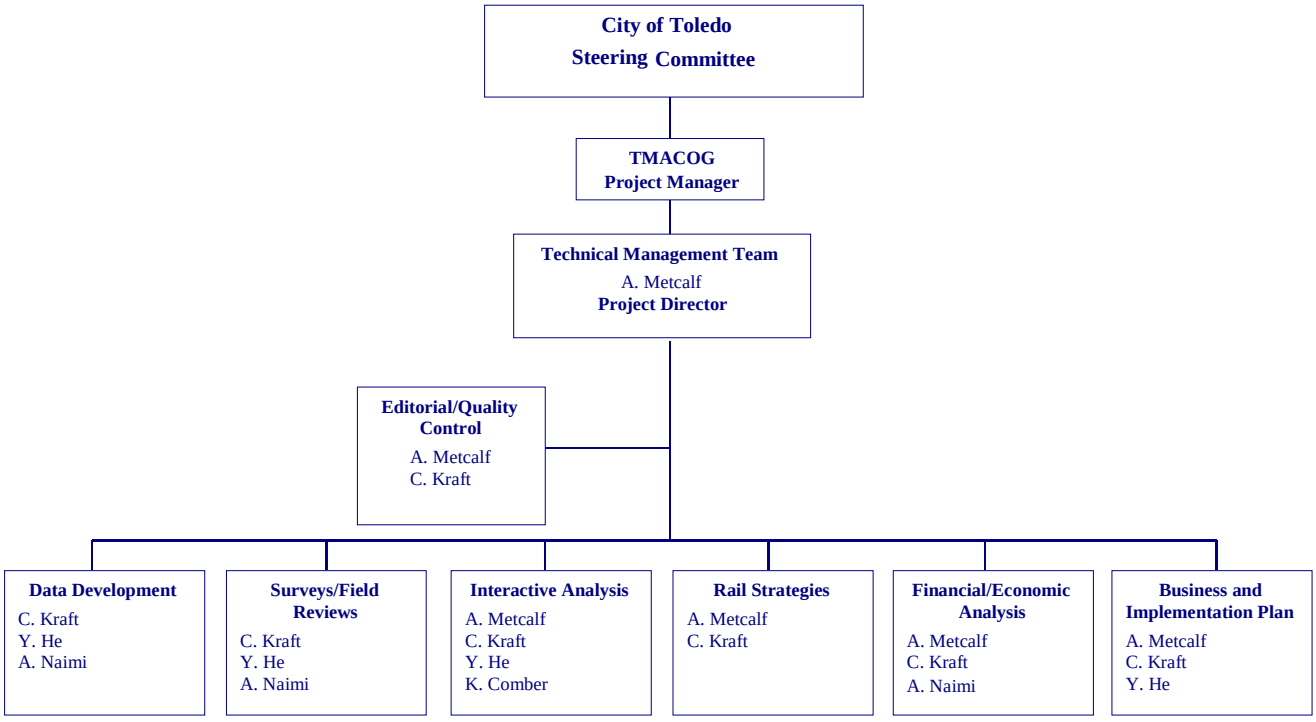
Team Organization

The organization chart given below shows the responsibilities of the various TEMS Team members. There is a management team, which includes the Project Director, Deputy Project Director, and Editor, and is supported by a series of technical teams that were selected to provide a high level of expertise for each task.

The Project Director will define responsibilities and establish clear "short" lines of communication and reporting systems geared to particular tasks and necessary time frames. This system will provide flexibility in addressing the evolving needs of the study, while maintaining control and accountability to the Project Manager.

As part of the management program, an editorial team will be established to review and edit all reports and other written materials to ensure the study deliverables match the Total Quality Objectives set by the TEMS Team for the study.

Organization Chart



KEY PERSONNEL ON THE TEMS TEAM

The following is a brief description of the role and expertise of the key personnel selected for the TEMS Team.

Alexander Metcalf, Ph.D., President of TEMS will serve as Project Director. Dr. Metcalf is a leading transport economist who is known for his work in rail planning and the development of innovative ways of planning and operating rail systems. His projects include the Hampton Roads Business Plan, Rocky Mountain High Speed Rail Feasibility and Business Plan, Duluth-Twin Cities Passenger Rail Concept Study, Midwest Regional Rail Initiative, Ohio Hub Regional Passenger Rail Business Plan, Portland-Boston Rail Restoration Study, Rochester-Twin Cities Multimodal Corridor Study, Florida Incremental Rail Business Plan Study, New York Statewide Passenger Rail Study, Midwest Regional Rail Economic Impact Study, Ohio Regional Rail Economic Impact Study, and the Chicago-Milwaukee-Twin Cities High Speed Rail Study. Dr. Metcalf's passenger rail planning qualifications and experience make him an outstanding candidate for Project Director of an intercity passenger rail business planning study.

Edwin "Chip" Kraft, Ph.D., Director of Operations with TEMS, will evaluate passenger train technology, train speeds, train schedules, capacity issues and develop estimates of operation and maintenance costs. He will lead the analysis of railroad impacts and railroad cost assessment. Dr. Kraft will manage the financial and economic analysis process and lead the implementation planning process. Recent projects include the NLX High Speed Rail Business Plan, Hampton Roads Business Plan, Tri-State III High Speed Rail Study, Minneapolis-Duluth/Superior High Speed Restoration of Intercity Passenger Rail Service – Comprehensive Feasibility Study and Business Plan, Midwest Regional Rail Initiative, Ohio Hub Regional Rail Business Plan, Florida Statewide Passenger Rail Business Plan, Rocky Mountain High Speed Rail Feasibility and Business Plan, Indianapolis-Louisville Business Plan, St. Louis-Kansas City Rail Capacity Study, and the Butler County Rail Yard Study, Ann Arbor to Traverse City Passenger Rail Feasibility Study.

Yang He, Ph.D., TEMS' Senior Transportation Analyst, will be responsible for developing the rail passenger corridor model for the Chicago-Indianapolis-Cincinnati Rail System. Dr. He will calibrate the COMPASS™ Demand Model to estimate rail ridership compared to auto, air, and intercity bus traffic, estimate revenues, and determine competitive fare levels. He will develop the market database including transportation network, origin-destination and stated preference data for the study area. Recent projects include the NLX High Speed Rail Business Plan, North American Market for High Speed Rail Study, Hampton Roads Business Plan, Rocky Mountain High Speed Rail Feasibility and Business Plan, Tri-State III High Speed Rail Study, Minneapolis-Duluth/Superior High Speed Restoration of Intercity Passenger Rail Service – Comprehensive Feasibility Study and Business Plan, Panama Canal Demand Study, Great Lakes and St. Lawrence Seaway: New Cargoes/New Vessels Market Assessment, Ann Arbor to Traverse City Passenger Rail Feasibility Study.

Ali Naimi, PhD, TEMS' Transport Economist, will develop the socioeconomic database for the demand model. This will include long-term projections of income, population, employment, and economic growth. Dr. Naimi will also develop the economic scenarios for central, upper, and lower economic growth and provide consistent disaggregate economic projections. He will also perform the financial and economic analysis, which includes estimating financial rates of return and economic benefits using USDOT FRA standards and criteria. Her recent experience includes Great Lakes Freight Traffic Economic Model, Hampton Roads Business Plan, Purple Line Economic Impact Study, NLX High Speed Rail Business Plan, Tri-State III High Speed Rail Study, Ohio Hub Economic Impact Study, Rocky Mountain High Speed Rail Feasibility and Business Plan, Minneapolis-Duluth/Superior High Speed Restoration of Intercity Passenger Rail Service - Comprehensive Feasibility Study and Business Plan.

Kathleen Comber, MSc, TEMS' Transport Analyst, will support the development of the origin-destination and network databases that will be used to calibrate the COMPASS™ Demand Model. Dr. Naimi will also support Ms. Comber in the financial and economic analyses. Ms. Comber's recent projects include the Hampton Roads Business Plan, Great Lakes

Freight Traffic Economic Model, Tri-State III High Speed Rail Study, NLX High Speed Rail Business Plan, Ohio Hub and Incremental Rail Corridor Studies, Rocky Mountain High Speed Rail Feasibility and Business Plan, Minneapolis-Duluth/Superior High Speed Restoration of Intercity Passenger Rail Service: Comprehensive Feasibility and Business Plan.

3.WORK PLAN AND STUDY BUDGET

It is proposed that the project be completed in a three month time frame. As shown in the accompanying Work Plan, anticipated completion dates are as follows –

- Study design and databank development by the middle of month 1
- Formulation of the service scenarios at the end of month 1
- Interactive analysis by the end of month 2
- System forecasts and outputs by the middle of month 3
- Implementation plan and business plan documentation by the end of month 3

To ensure that project documentation is completed within the timeframe, preparation of the draft final report will begin in month 2 and a draft will be submitted to the Steering Committee the last week in month 3.

The accompanying Study Budget gives a breakdown by of TEMS hours and labor costs by individual. Estimated expense for travel and other direct costs are also included. The Study Budget for the corridor analysis is $50,000.

Toledo-Detroit Passenger Rail Corridor / Business Plan – Work Plan