



SUMMARY OF CHANGES TO THE LPA REPORT

Following is a summary of DDOT’s responses to FTA comments dated February 6, 2009 concerning the June, 2008 DTOGS’ Final Draft Locally Preferred Alternative Report.

FTA Comment	Response
<p><i>This section [Definition of Alternatives] should begin with a discussion of the corridor's purpose & need; goals and objectives; and most importantly, travel sheds (urbanized area between downtown Detroit and outlying areas) and major travel markets.</i></p>	<p>Chapters 1 and 2 of the June 2008 Final Draft of the Detroit Transit Options for Growth Study (DTOGS) <i>Locally Preferred Alternative Report</i> (LPA Report) addresses this comment.</p> <p>The April 2009 Expanded LPA Report reiterates this information in Chapter 7, Detailed Definition of Alternatives, per FTA’s comments.</p>
<p><i>Broad descriptions of transit technologies continue to be provided in the report.</i></p>	<p>The FTA made this comment in the <i>Draft Detailed Definition of Alternatives Report</i> in November 2007. Since then, DDOT has incorporated this comment in the February 2008 revision of the <i>Draft Detailed Definition of Alternatives Report</i> and the June 2008 Final Draft LPA Report, specifically:</p> <ul style="list-style-type: none"> ▪ Section 7.3.2, Transit Elements on pages 7-35 through 7-40 included a discussion of guideway requirements, transit vehicles, stations, frequency and hours of service, travel speed and time. ▪ Description of the Build Alternatives on pages 8-5 through 8-12. ▪ Appendix J – BRT and LRT Design Guidelines ▪ Appendix K – BRT and LRT Concept Plans and Typical Sections.
<p><i>The alternatives should be described in order of magnitude of investment, from relatively low levels of investment with all surface guideway, to major levels of investment with significant lengths of (where appropriate) exclusive guideway. Similar alternatives can be differentiated by mode.</i></p>	<p>As indicated by the FTA, DDOT has revised the order in the presentation and description of alternatives, beginning with the No-Build, followed by TSM, BRT and LRT. Within each of these levels of investment, the Expanded Report lists each alternative in alphabetical order of the major street corridor where the transit improvement would operate.</p>

FTA Comment	Response
<p><i>A graphic representation of the future No-Build transit services would be useful, coupled with a description of the service characteristics of the routes (e.g. route termini, direction, buses/hour in a.m., headways and cross streets) in the corridor. These graphics (tables) should be done for the existing bus service and for future No-Build bus service in the corridor.</i></p>	<p>Appendix H – Draft Operating Plan of the June 2008 Draft LPA Report included this information in tabular format.</p> <p>Per FTA’s comment, the April 2009 revision of the LPA Report presents DDOT’s current and proposed transit service in graphic and tabular formats. Information for the proposed transit service encompasses relevant operating characteristics identified in FTA’s comment for each alternative analyzed.</p>
<p><i>FTA believes that TSM is a "real" option designed to serve the corridor's travel markets and address identified transportation problems. It should be competitive, to the extent possible, with higher cost capital improvements for enhancing mobility and meeting other needs in a given corridor. TSM alternative should be designed and analyzed comprehensively, presented for public and agency review, and evaluated as a real alternative that could be chosen as the LPA.</i></p>	<p>The TSM alternatives defined for the DTOGS Project were presented for review and comment multiple times to DDOT and the DTOGS Technical Committee, which included technical staff from various local, regional and federal agencies including the City of Highland Park, other City of Detroit departments, Wayne County, Regional Transportation Coordinating Council (RTCC), Southeast Michigan Council of Governments (SEMCOG), Michigan Department of Transportation (MDOT), Federal Highway Administration (FHWA) and FTA. As indicated in Chapter 9 (Next Steps) of the LPA Report, the LPA also needed to be adopted into SEMCOG’s Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP) to complete its adoption. These processes and approvals were completed and obtained in July 2008.</p> <p>Analysis of the TSM alternatives included development of capital cost (primarily fleet additions and park-and-ride construction – low-cost improvements per FTA guidelines) and 2030 ridership forecasts using the same model as the Build alternatives.</p> <p>As part of its Preliminary Engineering application and New Starts submission for the Woodward Light Rail Project, DDOT is currently developing a Baseline Alternative which would further address FTA’s comments regarding refining/optimizing the TSM alternative in order to define the Baseline alternative.</p>

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<p><i>Page 7-40 of the LPA report states that "travel speeds remain the same for the TSM alternative relative to existing service." The LPA report (same page) further argues that "significant travel time savings" are unlikely with the TSM without the use of an exclusive guideway. However, no real evidence is presented to substantiate these assertions. It does not appear that the TSM option was optimized in the study, per FTA guidelines for TSM options, in order to achieve measurable benefits that would be competitive to build options (LRT or BRT). Why? Simply stating that the TSM fails due to its inability operate more efficiently (faster) in mixed traffic or because it (similar to the build options) extends further (an additional three miles?) on Woodward Avenue between downtown Detroit and Grand Boulevard is not a plausible argument.</i></p>	<p>The April 2009 <i>Expanded LPA Report</i> will include travel times and speeds for TSM bus stops that are comparable to the BRT and LRT alternatives. The source of this information is the SEMCOG Hybrid model that has been used to develop 2030 ridership forecasts. This additional information will demonstrate any similarities or differences in travel times and speeds between the various alternatives, and identify specific areas for FTA where future congestion would occur. DDOT will include this additional information in the following sections:</p> <ul style="list-style-type: none"> ▪ Section 7 – Detailed Definition of Alternatives ▪ Appendix H – Operating Plan.
<p><i>The service plans for the TSM alternative and the LPA ought to reflect a common strategy for upgraded transit services in the corridor. As the plans stand currently, it is not clear why the TSM alternative is not competitive with the Build options in the corridor, while the LRT and BRT services perform well (compared to the poor performance of the TSM). If these different strategies are appropriate, then DDOT will need to explain the underlying rationale(s) for the differences. The current service plans (transit network maps with the TSM and build options overlaid on the existing and future transportation networks – which were not submitted for review – seem to provide higher-frequency LRT service in the corridor compared to service in the TSM alternative. Given that rail consistently have larger capacity than buses, the reason for this difference is unclear. If the difference is appropriate, then DDOT needs to explain the underlying rationale(s) for the differences.</i></p>	<p>The April 2009 <i>Expanded LPA Report</i> will include/clarify the following information, to present to FTA the rationale for the TSM alternatives:</p> <ul style="list-style-type: none"> ▪ Route maps and tables to clarify service modifications associated with each alternative ▪ Specific capital modifications associated with the TSM alternatives ▪ Travel times and speeds ▪ Reiteration of transportation capacity improvements within each of the three corridors that could have an impact on year 2030 travel times. <p>The April 2009 <i>Expanded LPA Report</i> will also reiterate that the Route 53 (Woodward Avenue), for example, currently operates every eight minutes and is proposed to operate every six minutes in the No-Build. Further increases in bus service as part of TSM (e.g. five-minute frequencies or fewer) are likely to result bus bunching and unlikely to produce better levels of transit service.</p>

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<p><i>Transit services need to be equilibrated in both alternatives. Equilibration ensures the compatibility of transit service levels with transit demand in terms of capacity, loading standards and productivity. Headway adjustments for individual transit lines are the most common adjustments in equilibration, but other modifications might include consist sizes, vehicle specifications, and service patterns.</i></p>	<p>Proposed transit service associated with each alternative was equilibrated. Refer to Appendix H – Operating Plan in the calculation of peak load factor. This analysis resulted in the recommendation to use articulated buses in the TSM alternative for Woodward Avenue, for example. Additionally, while not included in the June 2008 Final Draft LPA Report, ridership sensitivity tests were completed using alternative service frequencies as an attempt to optimize each proposed service (alternative).</p>
<p><i>Important quality-control tests on the alternatives are (1) isolation of the mobility benefits for zone-to-zone trips that have a rail component in the LPA, and (2) determination of the fraction of benefits that are derived from improvements in in-vehicle time rather than changes in walk times, wait times, transferring, or other changes.</i></p>	<p>As part of its PE Application and New Starts submission, DDOT has completed a preliminary SUMMIT run to identify transportation system user benefits for the LPA. (At the time of the DTOGS Project, SEMCOG had not incorporated the SUMMIT software as part of its travel demand model.)</p>
<p><i>A crucial check on the definitions of the TSM alternative and the LPA is the comparison of relative cost-effectiveness (CE). FTA requires that the TSM alternative compared to No-Build is better than the CE of the LPA compared to the TSM alternative.</i></p>	<p>This calculation entails integration of SUMMIT software into the SEMCOG Hybrid model. DDOT recently completed a preliminary SUMMIT run of the LPA as part of preparing its PE application and New Starts submission. (At the time of the DTOGS Project, SEMCOG had not incorporated the SUMMIT software as part of its travel demand model.)</p>
<p><i>In Table 7-10 (Estimated One-Way Travel Times – TSM and Build Alternatives), estimated travel time for the TSM options (“Trunk” and “T Route”) is considerably higher than the build options. This, again, seems to indicate that the TSM option(s) were not optimized compared to the build alternatives. A map(s) showing the TSM option overlaid on the existing transportation network would be helpful to illustrate the effectiveness of the TSM compared to existing conditions. There was no analysis of the TSM options’ ability to meet the corridor’s purpose and need (travel time between planned station areas, average speed with dwell times, etc). Is feeder bus service assumed in the TSM options?</i></p>	<p>The April 2009 Expanded LPA Report will include additional information on service plans – maps, tables, comparable station-to-station travel times, average speeds, and travel times associated with the TSM options.</p> <p>Yes, the TSM options included feeder bus service.</p>

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<p><i>The travel forecast for New Starts projects, compared with the New Starts Baseline (usually the TSM option), should be readily explainable in terms of the improved service and other inherent attributes of the New Starts project. This will enable DDOT and FTA to make and understand valuable insights from the analyses used to justify the chosen LPA. However, <u>no travel forecasts were included in the LPA report.</u></i></p>	<p>Refer to Table 8-2 and Appendix I – Ridership Forecast Methodology in the June 2008 <i>Final Draft LPA Report</i> for the 2030 travel forecasts.</p> <p>DDOT will add a new chapter between former Sections 7 – Detailed Definition of Alternatives and 8 – Evaluation of Alternatives to present the ridership forecasting methodology employed in the DTOGS Project along with modeling results. Subsequently, DDOT will modify Appendix I to focus on the development and chronology of the modeling exercise, particularly as they related to communications with FTA staff.</p>
<p><i>DDOT needs to share the results of the travel forecasts (using FTA’s SUMMIT software) to review the user benefits of the proposed New Start against the user benefits of the New Starts Baseline to make sure that they are explainable. FTA’s SUMMIT software offers a useful tool for making this comparison on a zone by zone basis. Differences in benefits should be traceable to improved travel time and other inherent attributes of the project compared to the Baseline. As a general rule, at least 70 to 80 percent of a New Start’s user benefits can usually be traced to higher average travel speeds (i.e., in-vehicle travel time savings). DDOT should be able to explain any benefits generated by out-of-vehicle travel time (OVT) savings, and there should be a particularly compelling explanation if OVT savings account for more than 20 percent of projected user benefits. The interpretation and description of travel forecast results and their corresponding user benefits begin with an understanding of the key travel markets present within the DTOGS. These markets should be characterized in terms of their size and behavioral nature. For each market, DDOT should be able to describe how the market is served in the New Starts Baseline alternative, and more importantly, how the proposed New Starts project will improve service levels in quantifiable terms. Specific origin-destination examples should assist in telling this story. A vast majority of the user benefits associated with the New Start should be present in these key travel markets. Because no travel forecasts were included in the LPA report, FTA could not determine whether this analysis has occurred.</i></p>	<p>Refer to Table 8-2 and Appendix I – Ridership Forecast Methodology in the June 2008 <i>Final Draft LPA Report</i> for the 2030 travel forecasts.</p> <p>DDOT will add a new chapter between former Sections 7 – Detailed Definition of Alternatives and 8 – Evaluation of Alternatives to present the ridership forecasting methodology employed in the DTOGS Project along with modeling results. Subsequently, DDOT will modify Appendix I to focus on the development and chronology of the modeling exercise, particularly as they related to communications with FTA staff.</p> <p>Again, as part of its PE Application and New Starts submission, DDOT has completed a preliminary SUMMIT run to identify transportation system user benefits for the LPA. (At the time of the DTOGS Project, SEMCOG had not incorporated the SUMMIT software as part of its travel demand model.)</p>

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<p><i>FTA's <u>Standard Cost Categories</u> (http://www.fta.dot.gov/planning/newstarts/planning_environment_2580.html) and <u>Reporting Instructions for the Section 5309 New Starts Criteria</u> (http://www.fta.dot.gov/planning/newstarts/planning_environment_2619.html) provides guidance on capital cost assumptions which may be used in estimating the capital requirements for the New Starts Baseline alternative. These cost parameters are based on actual data collected from TSM-like corridor bus projects built in a number of U.S. cities. Of course every project and situation is different, so costs associated with the TSM/New Starts Baseline alternative may deviate from these assumptions. However, significant differences must be discussed with the FTA prior to formally submitting annualized cost information. Typically, the capital cost of the New Starts Baseline is 10-20 percent of New Starts project's capital cost. There may be good reason for it to be higher or lower, depending on the nature of the transportation problem in the corridor and the technology used to address that problem in the TSM and build alternatives, but these reasons should be carefully justified in consultation with FTA. Standard Cost Category worksheets for the build and TSM / New Starts Baseline were not included in the DDOT's LPA report.</i></p>	<p>Appendix M – CEI Methodology and Results of the June 2008 Final Draft LPA Report included the SCC worksheets for each alternative. For further clarification, DDOT will add references to these worksheets in the following sections:</p> <ul style="list-style-type: none"> ▪ Section 8.1.2 Capital Cost ▪ Section 8.2 FTA New Starts Benchmarks ▪ Appendix M – CEI Methodology and Results. <p>DDOT used the May 7, 2007 version of the SCC worksheets, which was the most current version at the time that the CEI's were calculated and the LPA was identified and adopted in March 2008.</p>
<p><i>Operations and Maintenance Cost Methodology: It does not appear that DDOT followed FTA's guidelines for developing O&M cost estimates. Please refer to the following: http://www.fta.dot.gov/planning/newstarts/planning_environment_2396.html - Section 4 (Estimation of O&M Costs) to ensure that the approach that DDOT used to develop O&M cost estimates complies with FTA guidelines.</i></p>	<p>DDOT began developing O&M plans and costs in October 2007 and finalized them in February 2008 using the most current FTA guidance, dated December 2007.</p> <p>As part of its PE application and New Starts submission, DDOT will use the March 17, 2009 draft guidance to develop its O&M costs.</p>

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<p><i>Comment: Finding the best TSM/New Starts Baseline typically takes several iterations and conversations with FTA. The appropriate New Starts Baseline may not be obvious at the outset. As with the fixed guideway alternatives, more than one New Starts Baseline candidate may need to be analyzed and refined before the sponsoring agency and FTA can determine which one makes the most sense to address the transportation problems in the DTOGS corridor. This is best done during the alternatives analysis study, where the results of the optimization of alternatives can provide a better basis for local decision-making. Once the alternatives have been developed, SUMMIT software results can be used to help check and optimize each of the alternatives. SUMMIT can be used as a tool to determine whether and where each alternative might serve travel markets better. For example, more bus service might be added to the TSM alternative between two travel markets if SUMMIT indicates there are an unusually large number of benefits between two rail stations in the New Starts project alternative which cannot be explained solely by the presence of fixed guideway service. SUMMIT should also be used to check each alternative's benefits relative to each of the other alternatives. Among other reasons, this will allow DDOT to ensure that the transit networks assumed in the travel demand model have been coded properly</i></p>	<p>The DTOGS Project was an Alternatives Analysis and, therefore, defined both No-Build and TSM alternatives.</p> <p>As part of its PE application and New Starts submission, DDOT has defined a Baseline alternative that incorporates several modifications to its transit network since the adoption of the LPA in April 2008, such as the implementation of Route 73 (Woodward Express). Also, transit user benefits will be identified at this time using SUMMIT, as DDOT advised FTA in Summer of 2008.</p> <p>The TSM alternatives defined for the DTOGS Project were presented for review and comment multiple times to DDOT and the DTOGS Technical Committee, which included technical staff from various local regional and federal agencies such as the City of Highland Park, other City of Detroit departments, Wayne County, RTCC, SEMCOG, MDOT, FHWA and FTA. As indicated in Chapter 9 (Next Steps) of the LPA Report, the LPA also needed to undergo SEMCOG's RTP and TIP amendment processes to complete its adoption. These processes and approvals were completed and obtained in July 2008.</p> <p>Analysis of the TSM alternatives included development of capital cost (primarily fleet additions and park-and-ride construction – low-cost improvements, per FTA's guidance) and 2030 ridership forecasts using the same model as the Build alternatives.</p>

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<p><i>“FTA New Starts Benchmarks” – Page 8-18 references FTA’s previous cost effectiveness measure (cost per incremental rider). FTA no longer uses this metric as a performance indicator of a proposed project’s merit. Project sponsors are required to submit two measures of cost effectiveness. The first measure, which FTA uses in its evaluation, is defined as incremental cost divided by user benefits. The second measure is defined as incremental cost per incremental passenger, and is reported for informational purposes only.</i></p>	<p>Page 8-18 of the June 2008 Final Draft LPA Report states: "The DTOGS project uses the calculation described in the preceding paragraph as a proxy to FTA’s more rigorous definition of the CEI, which defines Transportation User Benefits (TSUB). These benefits and costs are determined using SUMMIT software and will be calculated for those alternatives to be included in PE." The proxy calculation for the CEI that was presented in the June 2008 Final Draft LPA Report is the incremental cost per incremental passenger.</p> <p>As previously stated, DDOT has completed a preliminary SUMMIT run to identify transportation system user benefits for the LPA as part of its PE Application and New Starts submission. (At the time of the DTOGS Project, SEMCOG had not incorporated the SUMMIT software as part of its travel demand model.)</p>
<p><i><u>Incremental Cost per Hour of User Benefits:</u> The measure used by FTA in its evaluation of candidate New Starts projects is the incremental project cost between the New Starts baseline alternative and build alternatives divided by the incremental user benefits between the New Starts baseline and build alternatives. The inputs to calculate this measure are produced as a matter of course in the development of travel forecasts for the proposed project. The user benefit calculation expressed in time equivalent units (hours) will serve as the denominator of the cost-effectiveness measure. The numerator is annualized capital and operating costs, resulting in a cost effectiveness measure of dollars per hour of user benefits.</i></p>	<p>Again, as part of its PE Application and New Starts submission, DDOT has completed a preliminary SUMMIT run recently to identify transportation system user benefits for the LPA. (At the time of the DTOGS Project, SEMCOG had not incorporated the SUMMIT software as part of its travel demand model.)</p>