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**TO: Wally Pagan, Fred Craig, and the Central Area Loop Study Committee (CALSC) Members**  
**RE: Modifications Needed to the CALS Level 2 Screening Analysis**  
**FR: Chip Tappan, Chair, Sky Loop Committee**

We appreciate the opportunity to submit the following needed modifications to the CALS Level 2 Screening Analysis. The current Analysis, dated February 20, 2001, and distributed on pink sheets of paper at the March 17, 2001, CALS Committee meeting does not provide the complete and accurate picture of the alternative technologies. The "Transit Alternatives At A Glance" display boards used in the public and private CALS presentations also need to be corrected. The text deletions needed are shown below with strikethroughs and the text additions are shown with underlines.

	<b>Vintage Trolley</b>	<b>LRT</b>	<b>PRT</b>
<b>Cost Effectiveness:</b>	<del>Maintenance and staging facilities can be shared with I-71 LRT.</del> Will require <u>maintenance and staging facilities.</u> Track would have to be embedded in pavement and would require the purchase of vehicles. Moderate capital costs. Neutral.	<del>Cost effective, high capacity transit mode.</del> <u>Cost effective in densely populated areas if located in exclusive right-of-way.</u> <u>Requires significant annual financial operating subsidies.</u> Would require the construction of a guideway, station platforms, a traffic/control system, vehicles and facilities. <del>Moderate to High capital costs. Neutral.</del> <u>Negative.</u>	Potential for cost-effective system. Low per-mile guideway cost. <del>High</del> Moderate total system cost. The minimized construction time at any location due to the erection of prefabricated guideways significantly reduces collateral cost impacts to downtown businesses. <del>Neutral.</del> <u>Acceptable.</u>
<b>Safety and Access:</b>	Platforms are flexible by serving all types of passengers. Passengers board and deboard from the sidewalk. Trolley systems are ADA compatible. The standard station stop includes station platform, wheel chair ramps, and detectable warning strips. <u>Potential conflicts with road vehicles and pedestrians.</u> <u>Requires curbside barriers and pedestrian crossing gates along busy sidewalks.</u> <del>Acceptable.</del> <u>Neutral.</u>	Modern LRT vehicles are fully ADA compliant. New construction must comply with local codes and regulations. Safety concerns include transit vehicle conflicts with road vehicles and pedestrians, on-board and station passenger safety. <u>Requires curbside barriers and pedestrian crossing gates along busy sidewalks.</u> <del>Acceptable.</del> <u>Neutral.</u>	Station platforms are level with vehicle floor and vehicles accommodate one wheel chair with an accompanying passenger. Each travel party travels securely by themselves. Emergency evacuation provisions designed to meet ADA, NFPA, and local jurisdiction requirements. Neutral.

<p><b>Environmental:</b></p>	<p><u>Helps development by enhancing both retail and residential neighborhoods.</u> The design of stations, passenger amenities, and streetscape along streetcar alignment can be done in a manner that reflects historic architectural themes. Vehicles are electrically powered by a trolley cable system and therefore environmentally friendly by not emitting exhaust. <u>However, will increase traffic congestion by mixing with vehicular traffic. Steel wheels on steel rails will increase street noise levels significantly.</u> Fire, life safety, building code requirements are easily met. <u>Will impact and may require removal of historic buildings for Licking River crossing. Will be in flood plain if routed on E. Pete Rose Way. Will negatively impact subsurface infrastructure in right-of-way.</u> Acceptable. Neutral.</p>	<p>Light rail vehicles are electric and therefore environmentally friendly. <u>However, will increase traffic congestion by mixing with vehicular traffic.</u> Vehicles will offer minimal visual impacts through historic neighborhoods. Will enhance street-level activity. <u>Will impact and may require removal of historic buildings for Licking River crossing. Will be in flood plain if routed on E. Pete Rose Way. Will require use of outside roadway lane currently used for parking, bus and taxi stops, truck deliveries, and subsurface infrastructure.</u> Neutral.</p>	<p>Good environmental friendliness with totally electric vehicles, and guideway enclosed running elements, minimal noise, and <u>reduction of street level congestion. Will induce increased ridership and pedestrian patronage in area.</u> Street environment unaffected after construction other than lightweight guideway presence. <u>Built environment will be negatively impacted, especially subsurface infrastructure. Columns may affect some subsurface infrastructure. Above-ground utilities would be placed underground along right-of-way. Visual impacts can be ameliorated but may occur due to elevated guideway. Elevated above flood-plain.</u> Neutral.</p>
<p><b>Utilization of Infrastructure:</b></p>	<p><u>Dependant on implementation of the I-71 Corridor LRT Project. The trolley system utilizes the existing infrastructure exclusively for operation. Requires new Ohio River Cincy-Covington and Licking River bridges to avoid use of vehicular lanes. L&amp;N Bridge crossings may not require additional structural support. Grade modifications may be required in some locations if existing vertical grades exceed 6%. The vehicle length and typical speed allows the car to maneuver tight radii curves (60' radius minimum desirable and 50'</u></p>	<p><u>Dependant on implementation of the I-71 Corridor LRT Project. Can utilize existing traffic lanes thereby reducing motor vehicle capacity, right-of-way and the L&amp;N bridges. Requires new Ohio River Cincy-Covington and Licking River bridges to avoid use of vehicular lanes. Will be compatible with the I-71 Light Rail alignment. Would require dedication of parking-curb lane. Will require ADA ramps on sidewalks at stops or lowering of roadway.</u> Neutral. Negative.</p>	<p><u>Not dependent on implementation of, but will work in conjunction with, the I-71 Corridor LRT Project. PRT vehicles travel above the street traffic and pedestrian sidewalks so impacts to transportation infrastructure occur only when the system is installed. Significant impact on existing subsurface utilities/ facilities. Will work in conjunction with overhead pedestrian bridges, and traffic signals / signs. River crossings accomplished using existing bridge structures.</u></p>

	absolute minimum). 90-degree turn can be achieved from inside travel lane to adjacent inside curb lane. Will require ADA ramps on sidewalks at stops. <del>Neutral. Negative.</del>		<u>Utilizes existing roadway ROW and all 3 existing bridges without use of any traffic lanes. Neutral.</u> Acceptable.
<b>Equity:</b>	<del>Provides economic boost to local area by enhancing the cultural setting for street life (visual amenity).</del> Coverage area dependent upon available funding and right-of-way. <u>Constricted service area due to limited alignment. Neutral.</u>	Would potentially benefit all segments of population that <del>live, work or visit the study area</del> <u>live or work near the limited number of stations.</u> Specific impacts include effects to property adjacent to the guideway. <u>Constricted service area due to limited alignment. Neutral.</u>	Elderly, low income, and handicapped travel in complete privacy and comfort. <del>Limited area due to the need to construct elevated guideway.</del> <u>Broad service area due to network of interlocking loops, better serving these groups than other technologies.</u> Provides opportunity for flexibility of fare structure for each origin / destination pair. <u>Neutral. Acceptable.</u>
<b>Effectiveness:</b>	Provides <del>convenient and efficient</del> movement of passengers between modes of transportation. Trolley does contend with local traffic conditions if not in exclusive right-of-way. <u>Constricted service area due to limited alignment. Neutral. Negative.</u>	LRT can be very effective method of transporting large numbers of passengers over significant distances, which is <u>not a circulator objective.</u> More effective in exclusive right-of-way than in mixed traffic. <del>Can serve a variety of destinations easily.</del> <u>Constricted service area due to limited alignment. Neutral. Negative.</u>	Convenient and comfortable due to private ride, <del>and on-demand</del> <u>24x7 non-stop service,</u> and large area coverage. Extremely easy for patron understanding and use. Downtown circulation / distribution function effectiveness enhances region-wide transit investment. Travel times faster than at-grade technologies. Acceptable.
<b>System Flexibility:</b>	Expansion of a trolley line and/or adding a spur is relatively simple, but would require the additional rail to be embedded in pavement. The trolley can stop when necessary, allowing for additional station stops for minimal cost. <u>Addition of new stops degrades overall travel performance and degrades effectiveness.</u> The trolley line can operate on the same track as LRT but would sacrifice its advantage of a tighter turning radius. Neutral.	Can be installed at-grade or grade separated. Can share an existing traffic lane with road vehicles. Is limited by minimum turning radius in downtown configurations. Additions to or changing of route requires the construction of additional rail. <u>Addition of new stops degrades overall travel performance and degrades effectiveness.</u> Neutral.	Very flexible alignment in comparison to other fixed guideway alternatives. Maintenance facility(ies) size and location are flexible since not required to be at same level as guideways and only small % of fleet maintained at any point in time. <u>Additional loops and stations can be added without negative impact to travel performance since they are off-line.</u> Expansion flexibility is good due to prefabricated

			guideway. <del>Neutral.</del> Acceptable.
<b>Implementation Obstacles:</b>	Vintage trolley is a proven technology where lightweight rail and totally new or restored cars are available from multiple vendors. The typical streetcar design life is 25 years. Thereafter a restoration process should begin prolonging the need to add new vehicles to the fleet. Acceptable.	A mature technology, proven in many other venues, a wide variety of vendors available. Acceptable.	<u>Perceived implementation risk is reduced due to private technology development, operational test and costing prior to any capital investment, project phasing, and contractual bonding for removal. PRT alternative offers the greatest benefit to our community via establishment of technology leadership identity for metro region and potential for local advanced transit technology planning, component manufacturing, consulting operational training and business development. PRT alternative carries the greatest risk of unsuccessful implementation among the alternatives. PRT is an extension of 30 years of successful automated transit technology applications, but to a higher level of complexity. Two key issues are vehicle weight and associated guideway cost, and system operational dependability.</u> <del>Neutral.</del> Acceptable.