

~~Chapter Four:~~ TRANSPORTATION

~~I.~~ Existing Conditions

~~II.~~ Projections

~~III.~~ The Transportation Plan

~~IV.~~ Public Transportation

~~V.~~ The Bikeway Plan

~~VI.~~ Roadway Character

~~VII.~~ Objectives and Strategies

~~I.~~ Existing Conditions

Within the Columbus Metropolitan Statistical Area (MSA), Dublin has a strong north-south road network that converges on downtown Columbus. In contrast, the area has an underdeveloped east-west road network, based in large part on the expense involved in bridging the Scioto River. This pattern continues to constrain movement and development within the ~~City~~[city](#).

~~The 2006 Public Opinion and Citizen Satisfaction Research Survey was conducted to rate the City on basic services provided to residents. Since the 1999 Thoroughfare Plan was adopted, there~~[There](#) have been significant improvements made to the transportation network [between 2000 and 2010](#). These enhancements are reflected in the improved transportation ~~rating~~[ratings](#) by respondents, ~~86 to the City's recent Resident Satisfaction Surveys. From 2006 through 2010, between 84 and 87 percent of which felt that respondents rated Dublin's~~ traffic and roadways ~~were~~[as](#) excellent or good, (compared to 80.7 percent in both 2004 and 2002, and only 58.7 percent in 2000). ~~The 2010 survey also indicated 86 percent excellent/good ratings for the ease of traffic flow on the city's modern roundabouts, compared to 76 percent in 2008 and 74.2 percent in 2006.~~ Although transportation received an "excellent/good" rating in recent surveys, responses also indicate that ~~much~~ improvement to the road system remains ~~a priority~~. Improving traffic ~~was~~[and roadways is consistently](#) indicated as [one of](#) the ~~second most important goal~~[top goals](#) for the community. ~~Please refer to Appendix I for a summary of the 2006 Public Opinion and Citizen Satisfaction Research Survey.~~

This chapter outlines existing traffic conditions, traffic volumes, identified capacity problems and planned roadway improvements. ~~It should be noted that efforts to model and develop the Thoroughfare Plan were initiated in late 2004, and "existing" reflects traffic conditions at that time.~~

A. Traffic Volumes and Capacity Issues

A variety of sources of traffic data ~~were utilized~~ are used to study Dublin's transportation system including traffic count inventories from the Ohio Department of Transportation (ODOT); Franklin, Delaware, and Union Counties; the Mid-Ohio Regional Planning Commission (MORPC); and the City of Dublin. These available counts were supplemented with 16 additional targeted inventories that consisted of 11 total weekday traffic counts and five AM and PM peak hour turning movement counts. AM and PM peak hour volumes were defined for all count locations. Collected data was used to validate the ~~TP+/~~ Cube/Voyager travel demand computer model developed for the planning process. Please refer to *Section II. Projections* PROJECTIONS for more information on the travel demand modeling process.

Based on the inventories, the heaviest used roadways in the modeling area are identified ~~in Table 4.1. It should be noted that although~~ below. Bridges that cross the Scioto River south of Glick Road also experience high traffic volumes. (Although Sawmill Road is listed, it is located along Dublin's eastern edge and is a roadway controlled and maintained by the City of Columbus. ~~Bridges that cross the Scioto River south of Glick Road also experience high traffic volumes.)~~

At present, drivers experience congestion and delays at several locations. ~~Units based on units of measurement for congestion are Level~~ known as Levels of Service and Volume to Capacity ~~Ratio and are described in detail on page 165~~ Ratios. Those ~~primary locations where existing traffic demand exceeds capacity~~ roadway segments where the limits of these measures are stressed or exceeded and the general causes include the following ~~roadway segments~~:

- I-270 north and east of the U.S. 33/SR 161 interchange, including weaving problems on I-270 at the interchange;
- SR 161 between Hyland-Croy Road and Cosgray Road ~~due to the~~ U.S. 33 freeway ramps and insufficient through and turning lanes during the PM peak hour;
- Glick Road and Dublin Road intersection during the PM peak hour ~~due to~~ lack of turning lanes and intersection capacity;
- Avery-Muirfield Drive corridor along the Post Road, Perimeter Drive, and Perimeter Loop Road intersections ~~due to~~ weaving conflicts to access commercial areas, intersection spacing problems, U.S. 33/SR 161 ramp back-ups and through traffic to access Dublin's northern neighborhoods;
- Frantz Road at its intersections with U.S. 33/SR 161 and Metro Place North ~~due to~~ high employment traffic volumes;
- Sawmill Road from Bethel Road to Hard Road, including major problems at the I-270 interchange ~~due to~~ lane restrictions north of the Interstate;
- Frantz Road between Tuttle Crossing Boulevard and Hayden Run Road ~~due to~~ commercial traffic and congestion points at the Hayden Run Bridge; and

- Riverside Drive (U.S. 33) south of SR 161 to Fishinger Road, ~~which has~~ scenic character along the River with two lanes of travel and limited left turn lanes.

~~These~~ While these capacity problems are primarily experienced during the traditional commuter rush (peak) hours. ~~However, lunch hour congestion and delays also occur~~ is felt in the areas of Frantz Road, Avery-Muirfield Drive and U.S. 33/SR 161 ~~during lunch hours~~. In addition, extreme weekend congestion and delays are experienced along the Sawmill Road and Powell Road corridors ~~on weekends, due primarily to~~ because of the the adjacent retail activity and the Columbus Zoo ~~exits~~.

~~Extreme~~ Other extreme congestion with stop-and-go conditions are encountered on many weekday evenings (especially Friday) along the I-270 North Outerbelt through Dublin. - When this happens, drivers often divert to ~~the Dublin's~~ internal ~~street system~~ streets, placing an increased demand especially on river crossings. ~~Typically, the entire roadway system will then experience~~ This can create significant delay and congestion across the entire roadway system.

While U.S. 33 and I-270 provide access for trips that start or end within Dublin, they also carry high volumes of traffic through the ~~City. In addition, roadways such as~~ city. Dublin Road, Riverside Drive, Sawmill Road, Avery Road, and U.S. 33 are also part of the regional road network. As new developments occur in Union and Delaware Counties, a significant portion of the traffic generated will be ~~oriented toward~~ attracted to Dublin's I-270 and U.S. 33 interchanges or other areas along I-270. - This ~~through regional~~ traffic ~~will absorb portions~~ absorbs a portion of available roadway capacity ~~within~~ for the Dublin area.

~~B.~~ Planned and Programmed Roadway Improvements

~~The 2007 Thoroughfare Plan (Map 4.4) shows~~ Of the several proposed and/or planned ~~roadways~~. ~~While roadway improvements shown in the Thoroughfare Plan, some projects~~ have been completed; others are under construction or are being designed. ~~The~~ These proposed or planned facilities include the following:

- Emerald Parkway east from Riverside Drive to ~~Hard Road. (and partially under construction)~~ Wright's Run (under design and acquisition underway);
- ~~Hospital Drive from Avery Muirfield Drive to Perimeter Drive. (complete with anticipated opening in January 2008)~~
- [Emerald Parkway widening, from Tuttle Crossing Boulevard to Glendon Court \(construction underway\);](#)
- U.S. 33/SR 161 interchange improvements. (under final design with construction ~~anticipated in 2008-2010~~) delayed until funding partners found);
- ~~Industrial Parkway relocation. (under final design with construction anticipated in 2008-2009)~~

- ~~• Village Parkway extension westward from Dublin Center Drive to connect with the Shamrock Boulevard extension. (under construction in 2007)~~
- ~~• Central Ohio West Innovation Center (COIC) District internal roadway network. (planned);~~
- Tuttle Crossing Boulevard extension to Avery Road and further to the west to connect with Houchard Road west of Amlin. (planned);
- ~~• Stoneridge Lane extension west to Dale Drive. • Bridge Street District grid street system (planned);~~
- ~~• Redirection of Post Road to Commerce Parkway. (planned)~~
- Wyandotte Woods Boulevard extension to Emerald Parkway. (planned); and
- ~~• Eiterman Road extension south to Rings Road. (completed in 2007)~~
- ~~• Westbound ingress only lane from U.S. 33 off ramp intersection at Avery Muirfield Drive to Hospital Drive. (planned)~~
- ~~• Tuttle Crossing Boulevard widening from Wilcox Road to Emerald Parkway. (under design with construction anticipated in 2008-2009)~~
- Avery Road widening from U.S. 33/SR 161 interchange south to City city corporate line. (first phase ~~under construction in 2007~~) complete, remaining phases planned).

In addition to the work being undertaken by Dublin, ~~other agencies including~~ the City of Hilliard, City of Columbus, Franklin County, Delaware County and ODOT, have scheduled ~~or completed~~ several roadway improvement projects, including the following:

- ~~• Powell Road realignment with Glick Road around the Columbus Zoo. (under construction in 2007)~~
- ~~• Britton Parkway extension south of Tuttle Crossing Boulevard to Hayden Run Road. (completed)~~
- Sawmill Parkway extension north from its existing northern terminus at Home Road north to Airport Road. (under final design);
- Riggins Road extension from ~~Britton Parkway~~ Wilcox Road west to Avery Road (planned);
- Hayden Run Road. (planned) Boulevard extension from existing terminus west of the CSX railroad tracks to Avery Road (planned);
- I-270 improvements widening from I-70 to U.S. 33 to the outside, creating a four-lane basic roadway section in each direction. (planned);

- [I-270 reconstruction from the Roberts Road interchange south to U.S. 62 in Grove City \(under construction\)](#));
- I-270/U.S. 33 interchange improvements to be constructed in phases- (planned));
- U.S. 33/Avery-Muirfield Drive interchange improvements- (planned));
- U.S. 33/McKitrick Road interchange construction- (planned)); and
- U.S. 33 widening from I-270 to Avery-Muirfield Drive to the outside, creating a four-lane basic roadway section with auxiliary lanes in each direction- (planned)).

Of greatest regional significance is the planned widening and interchange improvements of the Outerbelt on the northwest side of the greater Columbus area. Congestion along I-270 and U.S. 33/SR 161 is moderate to severe and will worsen as traffic volumes increase over the next 25 years. Two freeway segments currently operate at a Level of Service (LOS) “E” during the PM peak hour: westbound lanes of U.S. 33/SR 161 between I-270 and Avery-Muirfield Drive and the westbound lanes of I-270 between Sawmill Road and U.S. 33.

While new development has created thousands of jobs, it has also caused transportation challenges. The I-270 widening projects will assist in relieving the associated congestion. ~~Two~~ [with two](#) new lanes in each direction, with auxiliary lanes, ~~are~~ planned for the corridor on the northwest side. The new lanes will be ~~added to the outside of~~ the existing lanes first, and then to the inside in order to retain the width of the median for as long as possible and to minimize expenses by purchasing rights-of-way earlier.

In addition to the freeway widening, several interchange improvements ~~are anticipated for~~, the ~~area~~. ~~The~~ I-270/Cemetery Road, ~~the~~ I-270/Tuttle Crossing Boulevard, and the I-270/U.S. 33/SR 161 interchanges are all expected ~~to be improved~~ in the next 25 years. [In particular the I-270/U.S. 33/SR 161 interchange has received priority status by ODOT, with the possibility of construction beginning in the next five years.](#) Additionally, [ODOT has identified](#) the U.S. 33/SR 161 interchanges at Avery-Muirfield Drive, McKitrick Road, and U.S. 42 ~~are all identified by ODOT for construction by the year 2020.~~

[The for construction in the future. Timing of these improvements is uncertain given the lack of predictability of transportation funding in the State of Ohio. The City of Dublin actively cooperates with ODOT and other state and federal leaders to advance these important projects](#) ~~described above are.~~

[Each of these improvements is necessary even though with the widening of I-270](#) ~~has recently been widened~~ to three lanes in this area. ~~It, it~~ was ~~realized at the time of construction of the three existing through lanes~~ clear that ~~they would~~ [this widening alone could](#) not totally solve the mobility problems in the ~~northern~~ northwest corridor. ~~In addition,~~ [Added to this is the need for other general improvements](#) ~~must also be made~~ to crossroads and other roadways on the surface street system. ~~Beyond this,~~ MORPC is [preparing to meet these needs by](#) coordinating regional efforts to manage and reduce the demand for

travel through increased transit service and travel demand management strategies ~~by eliminating that can eliminate~~ trips or ~~changing the time of day the change when those~~ trips occur.

~~C. Bicycle Facilities~~

~~Bicyclists differ widely in their abilities and in their preferences for riding environments. In general, bicycle trip purposes can be divided into two broad types: recreation and transportation. Dublin has an extensive network of bikeways serving the recreational rider (refer to Map 4.10 Bikeway Plan). The 88-mile public system connects many local schools, parks and destinations, while the Muirfield Village development in northern Dublin adds an additional 22 miles in its private system.~~

~~When identifying potential bikeways, the City has placed primary emphasis on linking local destination points and completing the existing network. Dublin also has a few regional and commuter bike routes that traverse the City. These bike routes serve as links between destinations and connect Dublin with other communities in the region. Existing and potential bikeway corridors and routes have been identified as part of the Greater Columbus regional bikeway system and are included in the MORPC Regional Bicycle Transportation Facilities Plan.~~

~~Implementation of the bikeway system is achieved through City development regulations and funding mechanisms. Generally, Dublin's subdivision regulations require that sidewalks be constructed on both sides of all streets. If a proposed development includes property for which a bike path is proposed, the construction of the bike path is substituted for the usual length of the sidewalk.~~

~~The City works to connect existing bikeways with future bikeways within rights-of-way or easements. An annual bike path project list is submitted to City Council for appropriation; additional bikeway facilities can be funded separately. Generally, the City's bike path design standards specify a minimum pavement width of eight feet.~~

~~H. Projections~~

The Community Plan focuses on future impacts and future conditions within Dublin. Estimating traffic in future years ~~for the Dublin area~~ was accomplished through a ~~travel demand forecasting process~~ ~~computer model (Cube/Voyager)~~ that ~~models travel behavior (how many trips are made, to which destinations, at what times, etc.)~~. ~~Using estimates traveler characteristics, quantified using~~ information from MORPC and survey ~~data from Dublin, these traveler characteristics were quantified. The computer model (TP+/Cube) uses this information, combined with and~~ land use data ~~from Dublin~~, to ~~estimate project~~ when and where vehicles will travel.

~~An overall~~ ~~The~~ study area ~~for projections~~ is subdivided into smaller geographic areas called Traffic Analysis Zones, (TAZ-). ~~Using land use densities for the travel demand analysis. The~~ anticipated future land use ~~is then defined for each TAZ. The land use densities are translated into,~~ residential population and employment information ~~are calculated for each TAZ~~, which then determines the number of trips to be assigned to the roadway network.

~~The travel~~Travel demand modeling ~~work~~ is traditionally a four-step process: 1) trip generation; 2) trip distribution; 3) mode choice (method of travel, e.g. transit, personal vehicle, etc.); and ~~finally~~ 4) trip assignment. The *Transportation Planning Handbook, Second Edition*, published by the Institute of Transportation Engineers, ~~provides the following definitions for~~generally describes each of ~~the four~~these steps ~~in the process~~.

Trip generation: predicts the number of person trip ends ~~that are generated by~~ (travel to and attractedtravel from) to each defined zone in a study area.

Trip distribution: connects trip ends (~~productions and attractions~~) estimated in the trip generation ~~model~~ to determine ~~trip interchanges~~travel between ~~each zonal pair~~TAZs.

Mode choice: determines the ~~modes~~method of transportation that will be used to travel on between each ~~zonal interchange~~TAZ.

Trip assignment: assigns trips to specific highway or transit routes and determines the resulting highway volumes and transit ridership.

A. Planning Process

~~The~~ As noted above, the travel demand model ~~included~~includes land use data for ~~several hundred small land use areas. Each small area, or each~~ Traffic Analysis Zone (TAZ), ~~was~~which is then tested ~~for~~against future conditions. ~~The~~ For Dublin, the land use information for each zone ~~was~~is based on the Mid-Range Scenario on development scenario used to create the Future Land Use Map 4.1. Through an iterative process. Using vehicle trips projected for Dublin's development in approximately 20 years, the highway network ~~was~~is adjusted by adding or reducing lanes until the network ~~best accommodated vehicle trips projected for Dublin's development in 2030~~functions appropriately. The updated transportation demand model is the basis for the Thoroughfare Plan, which represents the road network necessary to address the community's 2035 mobility needs. The Thoroughfare Plan also indicates the number of lanes needed to accommodate expected traffic levels in 2035.

The initial transportation modeling effort ~~was~~ undertaken for ~~existing conditions (2004) and the~~ the 2007 Community Plan update included a year 2030 planning horizon, ~~which accounts for expected development to that year.~~ The 2030 testing was done to coincide with the fiscal analysis and yielded important information on phasing considerations and costs associated with the required network improvements. ~~It is also the basis for the Thoroughfare Plan shown on Map 4.5, which represents the road network necessary to address the community's 2030 mobility. Map 4.6 also illustrates the number of lanes needed to accommodate expected traffic levels in 2030.~~ The model was updated in 2012 to incorporate MORPC's new 2035 horizon year and adjustments to Dublin's Future Land Use Plan based on the Bridge Street District and West Innovation District planning efforts. Separate transportation and fiscal analyses have been undertaken for the Bridge Street District to provide additional guidance for phasing of street network improvements in this area.

~~The components of the future network are outlined in Section III of this chapter and includes a listing of projects recommended to address congestion in the Dublin area through 2030. It was important to focus~~ Focusing on year ~~2030~~2035 levels was necessary to ensure consistency with the planning efforts of other transportation agencies, including MORPC and ODOT. ~~The, as the~~ region's future transportation projects originate in planning and programming documents assembled by these two agencies. ~~By using~~ Using a ~~2030~~2035 horizon year and significant network analysis, provides Dublin ~~will have~~ an advantage ~~over other communities~~ in pursuing federal and state funding for future projects.

A The components of the future network include a listing of projects recommended to address congestion in the Dublin area through 2035. Due to the modest pace of development within the study area related to economic conditions over the past five years, many of the improvements originally identified as necessary by the 2007 Plan's horizon year of 2030 have been extended to the new horizon year.

During the 2007 Plan update, a policy determination was made as part of the planning process to limit the maximum number of through lanes to ~~two~~ in each direction for Dublin collectors and arterials. ~~This limitation~~ policy balances roadway capacity with aesthetics, pedestrian orientation, and other quality of life considerations ~~in Dublin~~. Thus, as travel demand increases, some corridors may be challenged to achieve acceptable levels of operation. ~~In~~ For instance, in the case of Dublin Road, the corridor will remain constrained as a two-lane roadway regardless of how congested it becomes.

As such, motorists will have to choose whether to remain on Dublin Road or select an alternate route. Dublin's overall system is comprehensive and robust and provides many alternate routes for most trip origins and destinations.

Some congested corridors will remain in ~~2030~~2035. The Avery-Muirfield Drive corridor, Dublin Road, and U.S. 33/SR 161 (inside I-270) will continue to experience congestion during ~~the~~ peak hours. ~~It is in these locations that and~~ additional traffic operational enhancements must be considered. ~~In addition to these congestion points, land use considerations for the full build-out of Dublin by 2050 will require additional improvements and additional analysis of the Dublin transportation system in the future.~~ Given Dublin's growth areas to the ~~north and~~ west, roadways on the periphery of the City and ~~others~~other important segments were sized by number of lanes with consideration of the full build-out impacts of these changing areas. Land use considerations for the full build-out of Dublin will require future analysis of and improvements to the Dublin transportation system.

~~B.~~ Transportation Network

~~Initial~~ Previous travel demand modeling ~~efforts~~ used the roadway network in the ~~adopted~~ 1999 Thoroughfare Plan ~~(amended June 18, 2007)~~. ~~This~~. Since this original network was found to be inadequate to handle the traffic associated with year 2030 development, ~~and~~ it was enhanced by adding lanes to certain roadway segments. ~~This~~ The planning process for these improvements included community input and respected community sentiments to limit road widening to acceptable widths. In this sense, it represents the maximum feasible network.

Adjustments were also made to consider transportation plans of adjacent municipalities. ~~The; the~~ network was ~~further~~ modified to recognize and coordinate with planning efforts of Union, Delaware, and Franklin Counties. The travel estimates for the 2007 Community Plan's preferred Mid-Range Scenario used a network that assumed several key improvements that added capacity to the transportation network by widening existing routes or adding new road segments. These 'base network improvements,' some of which were completed, were also used in the 2012 model update.

~~The travel estimates for the Mid-Range Scenario discussed in Chapter 3—Land Use used a network that assumed several key improvements. Map 4.2 shows projects included in this roadway network that add capacity to the transportation network by widening existing routes or adding new road segments.~~

Future projects important to Dublin include: the widening of I-270 from six to eight ~~lanes from the existing six~~ lanes; Avery Road widening to four lanes south of Shier Rings Road; U.S. 33 widening between I-270 and Avery-Muirfield Drive; Tuttle Crossing Boulevard widening between I-270 and Wilcox Road; Tuttle Crossing Boulevard extension to Houchard Road; Houchard Road widening and northward extension into Union County; and the connection of Emerald Parkway to Sawmill Road.

~~Beyond these initial improvements, four groups of additional roadway projects were identified: Group I projects resulting from the I-270 Major Impact Study (MIS) known as the 2006 Northwest Freeway Study; Group II projects resulting from area plan concepts in Chapter 3—Land Use; Group III as other projects in Dublin such as potential bridge locations or other development ideas not included in the area plans; and finally, Group IV projects resulting from travel demand modeling to increase capacity.~~

Several roadway networks and land use assumptions were analyzed for transportation impacts to the overall roadway network. The study studies identified the benefits and consequences of the various alternatives ~~under consideration.~~ In summary, the projects that are needed for the Dublin system to service travel demands include the following projects are described as shown in Groups Group I through IV in Table 4.2V, depending on their source and purpose.

Group I Projects are those recommended projects from the I-270/U.S. 33 Northwest Freeway Study. These projects will draw more traffic to the freeway system ~~than without~~ and away from the ~~improvements: surface street system.~~ In particular, the addition of ~~the~~ an interchange with U.S. 33 at Mitchell-Dewitt interchange Road is appropriately located to serve the burgeoning development that will occur in Union County. Traffic results given Dublin's projected growth are expected to be much worse for ~~the Dublin area~~ Dublin's arterial system if the freeway and interchange improvements are not implemented. ~~Given Dublin's projected growth, substantially more traffic would be included on the arterial system.~~

Group II Projects are improvements that will improve mobility within ~~the~~ described localized areas ~~described.~~ These projects should be strongly pursued in conjunction with development. In particular, the Hyland-Croy Road extension to Home Road (within Jerome Township) is vitally important to mobility for northwestern portions of the modeling area.

Group III Projects are improvements at various locations due to safety and crash severity concerns such as the Post Road realignment to Commerce Parkway, with Perimeter Drive widened to four lanes from Avery-Muirfield Drive to Emerald Parkway; and the cul-de-sac on Bright Road at Riverside Drive ~~due to safety and crash severity concerns~~.

Group IV Projects are additional improvements resulting from the travel demand analysis. -These projects benefit the performance of the overall Dublin area and have large significant impacts on their immediate areas.

~~C-~~ *Group V Projects* are improvements that create a grid street network in the Bridge Street District and include the possibility of a new 2-lane bridge crossing the Scioto River. These projects and streetscapes create a truly multi-modal transportation system by including amenities to support transit ridership, pedestrians, and cyclists.

Projected Traffic Operations

~~Maps 4.3 and 4.4 show the AM and PM peak~~ Peak hour levels of service (AM and PM) on the Thoroughfare Plan network ~~were analyzed as part of the travel demand model~~. When all of the improvements from the ~~four~~ five project groups are combined, the travel demand model shows that traffic (as intended by design) is drawn to the widened roads ~~-In addition to freeways attracting more traffic;~~ the widening of U.S. 42 and Hyland-Croy Road and the extension of Hyland-Croy Road increases traffic on these roadways. These ~~widenings~~ improvements enable traffic reductions on adjacent roads ~~like such as~~ Avery Road and Muirfield Drive ~~to have reductions in traffic when compared without the improvements~~.

~~D-~~ The greater development densities planned for the Bridge Street District created the need to rethink the transportation network not just within the Bridge Street District but for the entire network. The planned grid street network in the District is expected to improve traffic operations by giving travelers more transit, bike, and walking choices, and interconnected through-streets to disperse traffic across numerous roadways. Due to the interconnectivity of the grid street network, an additional bridge* connection, the emphasis on multi-modal travel, and the high density, mixed -use development pattern, modeling results indicate the potential for up to a 40 percent internal 'capture rate' of vehicle trips, meaning that 40 percent of trips will remain within the District and/or will be made using something other than an automobile (e.g. walking, biking or transit).

*A new bridge is included in the roadway network between SR 161/Bridge Street and the I-270 overpass that will serve to provide additional connectivity within the District; however, modeling suggests that this bridge will not significantly affect traffic volumes on SR 161/Bridge Street.

Levels of Service

~~The purpose of establishing a~~ A level of service (LOS) system is ~~to adopt operational definitions for~~ used to characterize those driving conditions that motorists routinely experience and recognize; how long is a vehicle stopped at a traffic signal, or how slow is traffic moving. The LOS is a rating system for roadways

that measures ~~operational~~these traffic conditions ~~in traffic~~ and ~~motorists~~motorists' perceptions. The individual LOS is ~~characterized~~described by factors such as speed and travel time, freedom to maneuver, traffic interruptions, and driver comfort and convenience.

Six LOS categories are commonly defined. ~~Each is given by~~ a letter designation from "A" to "F", similar to a report card, with LOS "A" representing the best operating conditions and LOS "F" depicting the worst, ~~as defined below:~~

"A" is the best operating condition with a free flow in which there is little or no restriction on speed or maneuverability. ~~At intersections, there is little or no delay.~~

"B" represents a condition of stable traffic flow, but ~~operating speed is beginning to be restricted.~~ speeds are slower. Short traffic delays occur at intersections.

"C" is still a condition of stable flow, but most drivers are ~~becoming restricted in their freedom to select speed,~~ less able to drive at the speeds at which they feel comfortable, and find it difficult to change lanes or pass other vehicles. Intersections experience average traffic delays.

"D" approaches unstable flow. Operating speeds are tolerable to the driver, but are subject to considerable and sudden variation. Freedom to maneuver is limited and driving comfort is low, as the probability of accidents has increased. Long traffic delays are experienced at intersections.

"E" represents a maximum roadway capacity for vehicles. ~~Operation in this zone~~Traffic is unstable, speeds and ~~flow rates~~ease of driving fluctuate, and ~~there is~~drivers have little ~~independence of ability to select~~ speed ~~selection~~ or maneuverability. Driving comfort is low and accident potential high. ~~The distance between vehicles is short~~Vehicles are close together and ~~operating speeds are subject to rapid fluctuation~~can fluctuate quickly. Very long traffic delays are experienced at intersections.

"F" is the worst operating condition. Speed and rate of traffic flow may drop to zero for short time periods. Extreme delays are experienced at intersections. This may cause severe congestion, affecting other adjacent roadways.

Volume-to-Capacity (V/C) ratios are used to define LOS ~~on~~along the ~~thoroughfare street~~ network ~~links.~~ These ratios are calculated by dividing ~~the modeled~~ traffic volume ~~on the link~~ by the defined capacity of the ~~link~~selected portion of the roadway. The V/C ratios relate to LOS as follows:

- LOS "A" through "C": V/C is less than 77 percent; ~~The~~i.e. the roadway ~~has~~is carrying up to 77 percent of its capacity ~~to carry additional traffic.~~
- LOS "D": V/C ranges from 78 percent to 91 percent; ~~The~~the roadway is nearing capacity.
- LOS "E": V/C ranges between 92 percent to 100 percent; ~~The~~the roadway has reached capacity and is being utilized to its maximum design.

- LOS “F”: V/C is greater than 100 percent; ~~Traffic~~traffic now exceeds the capacity of the roadway.

E. AM Peak Hour

~~During the year 2030~~As estimated by traffic modeling, AM peak hour, ~~traffic the year 2035 AM has~~ volume-to-capacity ratios ~~for the network links, as expressed in terms~~(see Levels of levels-of ~~service, Service~~) are generally acceptable. Certain areas will experience high levels of congestion. In some cases this is purposely balancing larger community goals with traffic goals. In other locations with low levels of service, corridors provide access to freeways (U.S. 33/SR 161 and I-270) and service the business corridors with significant concentrations of employment.

- High congestion levels are ~~shown~~projected in the southbound direction on Dublin Road south from Memorial Drive through the Historic Dublin to Rings Road. ~~It~~ A policy decision was ~~decided early on in the comprehensive planning process~~made to preserve the character and number of lanes on existing Dublin Road. ~~This corridor is very important to Dublin from to maintain its~~ historic qualities and quality of life ~~perspectives. Thus, this is a case of balancing larger community goals with traffic goals. As shown on Map 4.3, other locations with low levels of service are primarily concentrated along corridors providing access to freeways (U.S. 33/SR 161 and I-270) and those servicing the business corridors.~~to the residents who travel this roadway.
- Coffman Road between Brand Road and Emerald Parkway and Emerald Parkway from Coffman Road to Perimeter Drive ~~show~~are projected at LOS “F” ~~congestion~~ in the southbound direction during morning rush hour. The intersection of Brand and Coffman Roads is also LOS “F” for the morning peak hour indicating the need for intersection improvements at this location.
- The Avery-Muirfield Drive corridor also exhibits LOS “F” ~~in the~~for southbound ~~direction~~traffic. The ~~service interchange at~~U.S. 33/SR 161 interchange, combined with commercial development along the corridor, provides traffic volumes that challenge the existing 4/5 through lane configuration. ~~Even if the maximum roadway footprint policy was violated,~~an additional through lane was added in each direction there would still ~~provide~~be poor service levels. Intersection improvement projects ~~are anticipated to~~should help, but not solve, ~~the situation~~congestion along ~~road segments~~the roadway and at the intersections with Perimeter Drive and Perimeter Loop Road. The U.S. 33/SR 161 westbound ramp intersection is also LOS “F” in the AM, while the Perimeter Loop Road and the Perimeter Drive intersections are in the LOS “D” range.
- Avery Road south of U.S. 33/SR 161 modeled as LOS “E” in the AM ~~peak hour in the~~southbound ~~direction~~peak hour. Improvements to the intersection of Avery Road and Woerner Temple Road are also needed by ~~2030~~2035 to address ~~forecasted~~congestion ~~at this area.~~
- Non-freeway sections of U.S. 33/SR 161 from Frantz Road to Dublin Road ~~carries~~carry a high volume of traffic during the morning commute ~~when considering the existing number of~~

~~available lanes.~~ This corridor along with Frantz Road, services many higher density ~~commercial~~employment and residential destinations in Dublin, including Metro Center.

In the year ~~2030~~2035, other congested intersections include Emerald Parkway at Post Road; Post Road/Frantz Road and SR 161 (inside I-270); Riverside Drive at SR 161; and Bridge and High Streets in Historic Dublin. While not surprising, modeling results indicate the need for system upgrades ~~in~~. Based on the transportation analysis completed for the Bridge Street District, significantly expanding the size of the intersection of Bridge Street at High Street will not help ease congestion from future regional growth; a pedestrian-scaled intersection, however, will preserve walkability while acting as a deterrent to some regional trips with no real effect on congestion.

~~F~~-PM Peak Hour

During the ~~2030~~2035 PM peak hour, volume-to-capacity ratios for network links as expressed in terms of levels of service are generally acceptable; however, the PM peak hour typically experiences poorer levels of service than the AM peak.

- High congestion levels are ~~shown~~projected in the southbound direction along Dublin Road south from Memorial Drive through the Historic District to Rings Road. ~~Early in the planning process, A~~ policy ~~decisions were~~decision was made to preserve the character and number of lanes on existing Dublin Road ~~due to~~ the ~~maintain its~~ scenic and historic ~~importance~~qualities and quality of ~~the corridor.~~ life to the residents who travel this roadway.
- Coffman Road from Brand Road to Emerald Parkway and Emerald Parkway between Coffman Road and Perimeter Drive exhibit LOS “E” and “F” congestion in the northbound direction during the afternoon rush hour. The intersection of Brand and Coffman Roads is in the LOS range “A-C” in the PM peak hour.
- The Avery-Muirfield Drive corridor also ~~shows~~exhibits LOS “F” for the link in the northbound direction. The ~~service interchange at~~ U.S. 33/SR 161 interchange, combined with ~~the~~ commercial development along the corridor, ~~again~~ provides traffic volumes that challenge the existing 4/5 through lane configuration. ~~Service levels remain poor despite the modeling of~~ Even if an additional through lane was added in each direction, ~~there would still be poor service levels.~~ As in the AM, intersection improvement projects are anticipated to ~~improve~~ease, but not totally solve the situation along road segments at the intersections of Perimeter Drive and Perimeter Loop Road. The U.S. 33/SR 161 west bound off ramp and the Perimeter Loop Road intersections were modeled at a LOS “F” ~~in the PM, as indicated on Map 4.4.”.~~ Avery-Muirfield Drive at Perimeter Drive operates at LOS “E” ~~in the PM.”.~~
- Avery Road south of U.S. 33/SR 161 to Tuttle Crossing Boulevard also ~~shows~~exhibits poor service, with a LOS “F” in the PM peak hour in both the north and south bound directions. Improvements to the intersection of Avery Road at Woerner Temple Road are needed by ~~2030~~2035 to address ~~forecasted~~ congestion ~~at this location.~~

- ~~The non-freeway section of U.S. 33/SR 161 from Frantz Road to Dublin Road carries high volume when compared to the number of available lanes~~ traffic volumes during the PM peak hour. This corridor along with Frantz Road, ~~services~~ serves many higher density commercial and residential destinations in Dublin. Motorists using Frantz Road from U.S. 33/SR 161 to Rings Road also will experience heavy LOS “F” congestion in the future PM peak hour.

In the year ~~2030~~2035, other congested intersections will include: Post Road/Frantz Road and SR 161 (inside I-270), Bridge and High Streets in Historic Dublin, Riverside Drive and SR 161, and Emerald Parkway and Riverside Drive. As stated earlier, based on the transportation analysis completed for the Bridge Street District, significantly expanding the size of the intersection of Bridge Street at High Street will not help ease congestion from future regional growth; a pedestrian-scaled intersection, however, will preserve walkability while acting as a deterrent to some regional trips with no real effect on congestion.

~~As shown on Map 4.4, the~~The low levels of service for the PM peak hour are nearly the same as those corridors in the AM peak period, generally in the reverse direction, and are those located along freeways (U.S. 33/SR 161 and I-270), and in major commercial areas.

~~III.~~ The Transportation Plan

The Community Plan is the key policy document for decision-making about Dublin’s built and natural environments. The Community Plan text and associated maps contain detailed recommendations for ~~future~~ development including the appropriate location and density/intensity of residential and commercial uses; the general location and character of roads; the general location of parks, open space and public buildings; and the general sites for and extent of public water and sanitary sewer utilities. It also contains recommendations to guide development strategies for the unincorporated areas to the northwest and southwest of Dublin.

Throughout this Plan, recommendations are based upon a review of existing conditions and evaluation of future development scenarios for their impacts on infrastructure, roads and the ~~City’s~~city’s fiscal health. Dublin’s ability to maintain its high quality of services and quality of life is dependent upon careful review of development proposals for conformance with the Community Plan. The Transportation Plan and the Land Use Plan (~~see Chapter 3 – Land Use~~) form the foundation of the Community Plan ~~document~~. The Thoroughfare Plan, ~~as shown on Map 4.5 and described in Table 4.3~~, is the primary reference tool within the Transportation Plan, while the Future Land Use Map (~~Map 3.3~~) is the primary planning instrument within the Land Use Plan. Both of these primary planning elements provide the foundation to guide decision-making regarding the appropriateness of development proposals and infrastructure improvements necessary to support ~~future~~ development.

~~A.~~ The Thoroughfare Plan

The Thoroughfare Plan is composed of two elements: (1) ~~Map 4.5~~ a map showing existing and planned roads by functional classification and right-of-way width; and (2) an associated ~~Table 4.3~~ table that

describes each roadway and its planned ~~improvement~~improvements, including number of lanes. The roadway network shown ~~on Map 4.6 graphically~~in the Thoroughfare Plan map identifies the number of lanes needed to accommodate year ~~2030~~2035 development in Dublin.

~~Table 4.3 The Thoroughfare Plan table~~ in more detail lists the improvements to the existing network. ~~The along with the~~ functional classification of each roadway and the number of existing lanes ~~are shown. The table also shows the number of lanes~~ in both directions. If the number of lanes is followed by a “D”, this indicates roadways with a barrier median ~~thus yielding~~, a “~~divided~~Divided” roadway. An odd number (3, 5) indicates an “undivided” roadway with center left turn lanes, as needed. ~~Typeial~~While typical right-of-way widths are ~~also shown. It should be noted that~~ additional right-of-way may be necessary to properly accommodate required number of lanes, pedestrian and bicycle facilities, and roadway geometrics. ~~For more information regarding the Transportation Plan, maps, policies and intent, please contact the Engineering Department.~~

Functional Classification of Roadways

For thoroughfare planning and design purposes, roads are generally classified by function and have two purposes: to provide mobility and to provide access to property. The four functional roadway classifications used as part of the Community Plan are major arterials, minor arterials, collector streets and local streets. The road hierarchy ~~from most to least important~~ is as follows ~~(See Figure 4.1):~~:

Major arterials serve the major activity centers of urbanized areas, and carry the highest traffic ~~volume corridors~~volumes and ~~the~~ longest trips. This type of facility provides service for significant intra-area travel (such as between ~~central~~ business ~~districts~~centers and outlying residential areas), travel between major inner-city communities, and commutes between major suburban centers. Frequently, the major arterial system ~~carries intra-urban and inter-city bus~~supports major transit routes. ~~Service to abutting land~~Priority is subordinate given to providing travel rather than service to abutting land. The major arterial system is stratifiedfurther segmented by: (1) interstates; (2) other freeways; and (3) other major roadways (with partial or no control of access).

Minor arterials ~~interconnect with~~connect and ~~augment~~support the major arterial system. ~~This type of facility will accommodate by accommodating~~ trips of moderate length at a somewhat ~~lower~~lesser level of mobility than major arterials. This system places shifts to more emphasis on land access to land uses and may carry local bus routes, but ideally does not penetrate identifiable neighborhoods.

Collector streets provide both access to property and traffic circulation within residential neighborhoods and commercial or industrial areas. This system collects traffic from local streets, ~~accessing the~~ such as those through residential neighborhoods, and disperses it to the arterial system. The collector street system may also carry local bus routes where appropriate.

Local streets ~~comprise~~are all ~~facilities not found in one of the higher systems. These primarily facilitate~~ other streets. The priority is providing direct access to abutting land and ~~connect~~providing local connections to the ~~higher order~~remainder of the street systems. They offer the lowest level of mobility and

usually contain no commuter bus routes. ~~Service to through~~Through-traffic ~~movement~~ usually is deliberately discouraged.

~~B. 2007-2030~~ The Bridge Street District uses a slightly different classification system for the roadways in this area. Instead, within the District, the streets are organized into “families” which group streets that share similar characteristics and which may almost interchangeably be located in various parts of the District. Within the larger families are groups of streets with similar characteristics, grouped as street types. The intent of the street family designation is to provide a wide range of street types to accommodate different land use contexts and transportation needs within a broader framework of walkable, urban street character.

Corridor Connector Streets: The corridor connector street family provides a series of street types that balance non-motorized and vehicular travel options along high-capacity thoroughfares. This street family serves multiple types of development and provides crosstown connections, while accommodating various transitions in land use and street character.

District Connector Streets: The district connector street family provides a series of high to medium capacity streets that serve a wide variety of uses and development densities. District connector streets provide connections between districts throughout the Bridge Street District particularly along high-visibility frontages, and typically serve as prime locations for destination-oriented development such as shopping corridors.

Neighborhood Streets: The neighborhood street family provides a series of low to medium capacity streets serving a wide variety of land use characters, but most often serve residential areas or neighborhood-serving commercial uses. Neighborhood streets provide a finer-grained network of street connections that allow for multiple, interconnected travel routes, but typically serve more localized destinations rather than cross-corridor travel.

Alleys and Service Streets: Alleys and service streets are very low capacity, low speed streets located to the rear of lots that minimize driveway interruptions for pedestrians. Alleys and service streets provide access to parking facilities, loading facilities, and service areas for refuse and utilities. If certain design parameters are used, alleys may also serve as mid-block pedestrianways.

Roadway Improvements by Lead Sponsor

Many of the projects identified in the Thoroughfare Plan are outside of Dublin’s jurisdiction. ~~Map 4.7 shows~~ The Thoroughfare Plan map (above) identifies improvements by lead sponsor agency, whether the City of Dublin, or another jurisdiction such as the City of Columbus, the City of Hilliard, Franklin County, Union County, or possibly Delaware County. -Many projects outside the corporation limits of Dublin have a substantial impact for Dublin’s residents or employees. -Participation by Dublin for some projects near the ~~City’s~~city’s borders may be prudent to improve mobility to homes and major employment centers.

C. Phasing of Roadway Improvements

As a basis for the fiscal analysis, a phasing of roadway improvements ~~was~~ defined for the year ~~2030~~2035 roadway network. ~~Expected~~Relative phasing of projects is ~~illustrated on Map 4.8.~~identified in the [Thoroughfare Plan map \(above\)](#). Improvements identified for ~~the period between 2007 and 2011~~design or [construction within successive five year windows](#) are recognized in the ~~2007-2011~~City's annual Capital Improvements Program (CIP) or are anticipated to be constructed by developers.

V. Public Transportation

~~The Central Ohio Transit Authority (COTA) provides transportation alternatives for Dublin and the Greater Columbus area. The regional agency strives to be the transportation provider for Central Ohio... "with safe, reliable, convenient, affordable and user friendly transportation for every resident and visitor."~~
COTA is funded primarily by sales tax, but also receives additional financial support through passenger fares, federal and state assistance, interest payments and other financial mechanisms. In 1993, COTA and the Mid-Ohio Regional Planning Commission (MORPC) prepared a comprehensive *Long Range System Plan* that defined transit needs for the region. More recently in August 2006, the COTA Board of Trustees adopted the report, *Long Range Transit Plan: 2006 to 2030*, outlining its four major future objectives:

- ~~• Expansion of fixed route bus service throughout Central Ohio~~
- ~~• Increased service for persons with disabilities (paratransit)~~
- ~~• Introduction of technologies to make transit more convenient and user friendly~~
- ~~• Planning for future transit investments (transit centers, park and rides, acquisition of rights of way in strategic corridors and other transit initiatives)~~

~~Dublin is a major employment center within the Columbus metropolitan region, and most routes are intended to link the City's largest corporate residents. Current bus lines include three express routes, one local route and a seasonal crosstown route.~~

~~According to COTA's projections, the Dublin area is expected to have the greatest level of future employment growth for the metropolitan transit planning area. Based upon these expected trends, a significant increase in service to Dublin is proposed. Adopted plans recommend three additional crosstown routes to provide better suburb to suburb service, a new local route for residents and a new express route for commuters to downtown Columbus. Expansion of services routes is focused near the Dublin Methodist Hospital, and a future park and ride facility is expected to complement the existing Dale Drive location. Two additional park and ride locations are proposed south of Dublin in the Hayden Run corridor, and three LINK routes are proposed in the Tuttle Crossing, Hayden Run and Sawmill areas. [Central Ohio is one of the largest metropolitan regions in the nation and has primarily developed in a low-density suburban form. Significant investment has been placed in the area's road networks, resulting in relatively](#)~~

low congestion and commute times for Dublin and the region. Dublin's success as an economic leader in Central Ohio has been, in part, due to its commitment toward planning and proactively constructing major roadway projects to ensure access and mobility.

Dublin's role as a regional employment center has resulted in reliance on the automobile and only modest transit options focused on larger employers or key regional destinations such as the Columbus Zoo. Population and employment will continue to rise despite current transit limitations, but will also create new opportunities to support expanded mode choices.

As further discussed in ~~Chapter 8—the Demographics Chapter~~, Dublin's transportation patterns are largely shaped by its employment base. Every weekday, the ~~City nearly doubles in size~~ city's daytime population (approximately 65,000) exceeds its residential population (approximately 43,000) as workers from throughout Central Ohio travel to Dublin; likewise, Dublin residents commute to professional and managerial jobs in downtown Columbus and other suburban centers. The ability to have transportation options for workers, particularly in the service sector, will be an important consideration for Dublin's future ability to attract and maintain corporations ~~and small businesses alike~~. Providing additional ride opportunities to the downtown area will also add additional flexibility for travel options.

Current Bus Service

The Central Ohio Transit Authority (COTA) provides transportation alternatives for Dublin and the Greater Columbus area. The regional agency strives to be the transportation provider for Central Ohio... "with safe, reliable, convenient, affordable and user-friendly transportation for every resident and visitor." COTA is funded primarily by sales tax, but receives additional financial support through passenger fares, federal and state assistance, interest payments and other financial mechanisms.

Dublin is a major employment center within the Columbus metropolitan region, and most current bus routes are intended to link the city's largest corporate residents. Existing routes center around the Tuttle Crossing-Emerald Parkway area, as well as locations on the interior of I-270. Current bus lines include four express routes, one local route, and two crosstown routes, one of which provides seasonal access to the Columbus Zoo. These include two new bus lines added by COTA in 2012 (one express and one crosstown) with service to Sawmill Road on Dublin's eastern border. COTA also operates a park and ride facility at Dale Drive in the Bridge Street District.

In 2006, the COTA Board of Trustees adopted its *Long-Range Transit Plan: 2006 to 2030*, outlining the agency's service goals for the next 25 years. In April 2012, COTA adopted the 2012-2035 *Long-Range Transit Plan*, updating its major objectives:

- **Fixed-Route Bus Service:** Expansion of the transit system's fixed-route 'backbone' throughout Central Ohio, including express, local, crosstown and neighborhood circulator lines. System improvements also include new and updated park and ride facilities and a 'Bus on Shoulder' program between COTA and the Ohio Department of Transportation (ODOT) to allow bus use of freeway shoulders during congested periods.

- **Mobility Services:** Increased services for the general public and for diverse markets such as the elderly, disabled, and low-income individuals who need transportation to work, job training, and childcare. This includes improvements to COTA's 'Mainstream' service, a shared-ride, door-to-door option for persons with disabilities (paratransit).
- **Intelligent Transportation Systems:** Introduction of technologies to make transit more convenient and user-friendly, such as the use of variable message signs at park and rides and shelters, itinerary-planning features for Smartphones and other mobile devices, and real-time transit performance reporting.
- **Strategic Transit Investments:** Planning for future transit investments (transit centers, park and rides, acquisition of rights-of-way in strategic corridors and other transit initiatives). This includes investments in alternative transit modes such as fixed-guideway options (Bus Rapid Transit, light rail, commuter rail, etc.).
- **Customer Services, Amenities and Public Outreach:** Improvements to public understanding of the transit system and ease of ridership through a variety of means, such as providing alternative methods for purchasing bus passes, improved bus stop signage and shelter amenities, and maintenance of a modern bus fleet.

Planning for Future Transit Options

This Plan recognizes the role that COTA plays in the Dublin area and considers a long-term progression of potential transit options that can adjust to development patterns and growth. With over 800 acres of land zoned for high density, mixed use urban development in the Bridge Street District, it will be important for the City to work with COTA to plan for additional transit service in this area. Likewise, as the West Innovation District grows into a major employment center, Dublin should pursue extended transit service consistent with the recommendations of the West Innovation District Area Plan.

As COTA continues to invest in its infrastructure and expand services, it will be crucial for Dublin to remain engaged with the transit authority to ensure the City's public transportation needs are met. As Dublin continues to expand and mature, both transportation and land use policies should address the need to preserve future transit options. ~~The encouragement of~~ The City should also undertake its own assessment of potential transit routes, stop locations and facility designs to facilitate future discussions with COTA and other jurisdictions or government agencies with an interest in improving public transportation in Central Ohio. Various options for expanded transit service and potential new transit modes are described below.

Expanded Bus Service

Planned COTA Lines

According to COTA's projections, the Dublin area, along with other suburban locations, is expected to have a significant level of future population and employment growth for the metropolitan transit planning area. Based upon these expected trends, some increased service to Dublin is proposed. COTA's Long Range Transit Plan recommends the extension of two express lines to Dublin from downtown Columbus; one providing access to the Dublin Methodist Hospital via I-270 and U.S. 33, and another along Sawmill Road via SR 315 and I-270. Two new park and ride facilities are proposed, one at the terminus of each new express line. Discussions between COTA and the City have also suggested the potential for a park and ride facility within the West Innovation District, to the west of SR 161/US33.

COTA's routes are provided in a radial pattern from downtown Columbus, with Dublin located at the terminus of routes extending from the Ohio State campus and inner city. Major Dublin employers have stressed the need for additional transit access, particularly in a cross-town patterns to suburbs that would increase access to potential service employees. Enhanced travel between suburban centers and the downtown employment core is also an important future consideration. To address these concerns, COTA's plans include the capability to better link Dublin with the Worthington and Hilliard areas. COTA has focused its efforts to provide additional routes in other areas of the region, given recent national economic trends. As a result, additional planned routes in Dublin will be delayed.

Creation of a Dublin Circulator/Spine

Greater effort should be made to focus on Dublin's internal needs as development in the SR 161 corridor intensifies. The SR 161 'spine' offers perhaps the greatest opportunity to focus long range transit planning strategies in Dublin. Stretching through the center of Dublin and encompassing the majority of future development and commercial intensification in the city as a whole, the spine provides access to all of Dublin's major business neighborhoods. Extending outward from the spine, circulator routes between major employment nodes, shopping areas and entertainment centers within the ~~City should be considered as the need arises. Areas such as the SR 161 corridor should be targeted for higher density development to facilitate ridership within the City core, and consideration should be given to locations for future transit centers and park and ride facilities. Efforts should also be made to maintain open space corridors in the Southwest Area and U.S. 33 Corridor Area that will permit the integration of additional long term rail options (spurs, station locations, etc.) as the region urbanizes and Dublin is no longer located on the suburban fringe.~~ city should be considered as the need arises.

~~V.~~ The establishment of a circulator route or primary transit spine through COTA, or perhaps through a City-sponsored service, should be considered to link key businesses, amenities and destinations. Various options could include both spine and circulator routes. Route locations will depend on the type of transit vehicle and intended level of service (i.e. emphasis on local or regional connections). One option includes a primary transit spine that parallels SR 161 along Perimeter Drive where retail and employment nodes can be accessed. The spine concept could be considered in combination with a circulator route linking key

employment nodes along Emerald Parkway and Frantz Road with destinations in the West Innovation and Bridge Street District.

Any circulator route should be focused on providing wait times of less than ten minutes to satisfactorily serve residents and employees. Other COTA routes should also be reconfigured to link into any established circulator system. Specialized buses such as hybrid or eco-friendly buses, luxury buses, retrofitted double decker buses or rubber tire street cars that would be distinctive from regular transit routes should be emphasized to increase ridership levels.

Rapid Bus

As development intensity increases in the future, typical bus route delays in traffic may justify consideration of new alternatives. Establishment of Rapid Bus is an option that will allow for the expedited movement of buses through normal traffic. Rapid Bus may include signal prioritization and/or signal preemption, as well as other intelligent treatments such as interactive stop times that will provide real-time travel information. Rapid buses use the normal road right-of-way, but can include additional lanes that allow faster movement through congestion points and intersections.

Bus Rapid Transit (BRT)

The next stage in transit provision is Bus Rapid Transit. Congestion on some roadways may someday reach a point by which a lane of traffic could be converted primarily to bus use. Internal lanes on the transit spine reaching from the West Innovation District to the Bridge Street District could be bus-only or HOV lanes that accommodate the rapid movement of buses. Transit stops could be placed within the landscaped median areas if properly planned. Selection of the BRT option is preferred because of the relatively lower cost provided by converting existing infrastructure. In time, buses are expected to continue improving in efficiency, and the use of buses can be more cost-effective than rail options. Lanes could be available to general traffic in off-peak hours, and the system could easily be extended in stages and converted to rail if ridership justifies the expenditure.

Fixed Guideway Transit

Local Integration with Future Rail Options

A future BRT line connecting the Bridge Street District and the West Innovation District and paralleling SR 161 could be considered for conversion to light rail as the core of Dublin continues to grow. Rail lines can be added into the existing right-of-way if development patterns support the conversion. Any of the available transit options should be extended to link with passenger or commuter rail, should the opportunity arise. Most likely would be a transit location within the West Innovation District in the proximity of Darree Fields. A secondary consideration would be the integration of light rail into the I-270 and/or U.S. 33 corridors and the potential to establish key links to routes as necessary to enhance mobility and spur development at important nodes.

Regional Light Rail

Consideration of light rail options in Central Ohio area has not progressed in recent years despite significant investment in local studies. COTA's evaluation of the North Corridor Transit Project was the last attempt to look at regional rail solutions for commuters. The "hub and spoke" approach centered on downtown Columbus and emphasized areas of highest density along a north-south line parallel to High Street and the I-71 Corridor. Dublin was considered as a secondary route for that system, but the proposal was not successful. Little consideration has been given for other approaches that could garner greater support from key suburbs like Dublin. Feasible sources of land for future routes will likely be limited to railroad rights-of-way or some consideration of existing rights-of-way along interstates or other major thoroughfares as regional growth continues and property values increase.

Significant increases in local and regional congestion will be necessary before regional or suburban light rail becomes politically or economically possible. While it is reasonable to expect that rail solutions are not likely at any time in the foreseeable future, it remains important to plan for all long-term possibilities. Dublin should remain engaged with COTA, the Ohio Department of Transportation (ODOT), the City of Columbus and other jurisdictions to ensure that future light rail initiatives include well-planned connections to Dublin.

Statewide and Interstate Passenger Rail

Significant discussion about passenger rail has occurred at the state level in recent years. In particular, the Ohio Hub concept has been developed with the purpose of creating a series of passenger rail connections to link Columbus with other Ohio metropolitan areas. An Ohio passenger system could be connected to other states in the Midwest, providing a more regional and national approach. The CSX railroad through Dublin has been considered as a secondary line in the Ohio Hub concept that would link Columbus northwest to areas such as Fort-Wayne/Chicago and Toledo/Detroit.

Primary focus of the Ohio Hub Concept is the 3-C line linking Cleveland, Columbus and Cincinnati, the state's largest metro areas. The concept includes a limited number of intermediate stops on each major rail link. The push for passenger rail in Ohio, however, has been delayed due to concerns about the project cost, travel speed and state budget issues. Plans for the West Innovation District maintain an option to provide a future station location and the ability to consider the area for related transit-oriented development should the opportunity arise.

The Bikeway Plan

The City of Dublin plans for bicycle ~~facilities~~infrastructure in conjunction with ~~planning for~~ other transportation modes. Bikeways should be ~~adequately~~-located and designed to ~~link traffic generators such as~~provide links to schools, parks, civic uses, shopping centers, major residential neighborhoods and

employment centers. A bicycle network should ~~also~~ include more than one type of facility to meet the needs of a variety of riders with different skill levels. Existing roadways should serve as the base system to provide for the travel needs of cyclists. Bicycle paths and lanes, especially in scenic corridors, parks and areas where access is limited, should ~~augment~~supplement the network. Throughout this Plan, the term 'bikeway' is used as a common word to define any road, path or route that is specifically designated for bicycle travel. It may be designated for the exclusive use of bicycles or be shared with other transportation modes. The following are more specific definitions of bikeway components:

- Generally, a *bike path* is a separate off-street path. It may be constructed next to existing roadways or along longer, relatively uninterrupted corridor elements, such rivers, utility rights-of-way, or abandoned railroad rights-of-way to connections within and between neighborhoods or within and between parks. In Dublin, these are typically designed for shared use by non-motorized travel modes (e.g. biking, walking, jogging, rollerblading, etc.) and are referred to as multi-use paths.
- A *bike lane* is a portion of a roadway that has been designated by striping, signing and/or pavement markings for the preferential or exclusive use of bicycles.
- A *signed/shared bike route* is designated by signage~~signs~~ along roadways to indicate their appropriateness for bicycle travel, usually ~~with no~~within a normal width vehicular travel lane. These are often part of a destination-oriented route system, and may be linked to route segments comprised of other bikeway types.
- A *sharrow* is a variation on signed/shared lanes where arrows or chevrons (pavement markings) on normal width or wide curb lanes serve to alert motorists to expect and be observant of cyclists.
- A *cycle track* is an exclusive bicycle-related improvements facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane. Cycle tracks can be either one-way or two-way, are separated from vehicles and pedestrians by pavement markings or coloring, bollards, curbs/medians or a combination of these elements.
- The term *bicycle facility* is used to denote improvements and provisions made to accommodate or encourage bicycling such as bicycle racks, lockers and employer-provided showers.

~~The future~~City Council formed the Bicycle Advisory Task Force (BATF) in fall of 2009 to identify potential bicycle facilities, including on-road as well as off-road bikeway improvements. The bikeway system will connect to and continue to be developed to expand upon the existing system. This network unites~~system helps to unite~~ the ~~City~~city and ~~provides~~provide access to ~~both existing and proposed~~ parks, schools, community facilities, shopping areas and employment centers. The regional network provides commuting routes to Columbus, access to regional bikeways (such as the Ohio Rails-to-Trails system) and links to regional recreation facilities such as the Columbus Zoo and Antrim Park. ~~Map 4.10 provides a general illustration of Dublin's existing and proposed bikeway system, including regional bikeway connections.~~ For more information, please refer to the *Dublin Parks and Recreation Master Plan* and the MORPC *Regional Bikeway Plan* or other applicable planning documents, such as the 2011 Bicycle Advisory Task Force report.

Bicyclists differ widely in their abilities and in their preferences for riding environments. In general, bicycle trip purposes can be divided into two broad types: recreation and transportation, each of which has its own unique character.

For the recreational rider Dublin has an extensive network of over 110-miles of public bikeways connecting many local schools, parks and destinations. Muirfield Village in northern Dublin adds an additional 22 miles of its own private system. This network reflects the emphasis the City has placed on linking local destination points and ultimately will complete an extensive network of bikeways.

For bicycle transportation Dublin has regional and commuter bike routes that traverse the city, serving as links between destinations as well as connecting Dublin with other communities in the region. The BATF helped identify existing and potential bikeway corridors and routes in the city which are part of the Greater Columbus regional bikeway system and included in the MORPC *Regional Bicycle Transportation Facilities Plan*.

Implementation of the bikeway system is achieved through City development regulations and funding mechanisms. Dublin's subdivision regulations require that sidewalks be constructed on both sides of all streets. If a proposed development includes property for which a bike path is proposed, the construction of the bike path is substituted for the usual length of the sidewalk. Generally, the City's bike path design standards specify a minimum pavement width of eight feet. The City works to connect existing bikeways with future bikeways within rights-of-way or easements. An annual bike path project list is submitted to City Council for appropriation; additional bikeway facilities can be funded separately. VI.

Roadway Character

Roadway character is defined by the ~~overall~~-visual experience created by the design of the roadway as well as the physical elements adjacent to the roadwayit. Character types vary greatly and can evoke a variety of responses that create an immediate psychological effect on motorists ~~and pedestrians~~. These effects can persist to create long-lasting impressions for residents and visitors about the ~~City~~city and Dublin's community values. For example, many visitors to the region travel I-270 through the city, and their impression of Dublin may be formed solely by their experience driving that freeway segment.

Components that contribute to the definition of roadway character include: road design and construction standards; setbacks and buffering between adjacent uses; building types and -architectural styles; signs; landscaping within the right-of-way and adjacent areas, design quality of the pedestrian realm, and the ~~basic underlying geographic~~natural qualities of the area.

As a development tool, the Community Plan identifies the desired roadway character of major thoroughfares throughout Dublin and the surrounding planning area. These designations assist in the preservation of existing character and guide future development and the long-term improvement of Dublin's roadways. Some road corridors are particularly scenic and their existing character should be

~~protected~~well managed during zoning and development requests, while others should be targeted for enhancement as growth occurs.

Preserving and creating ~~road~~roadway character begins by defining a vision for how a particular road should look and feel and continues by determining what elements are needed to carry out the vision. Dublin's major thoroughfares generally include visual quality that falls within four major categories: *Rural Character*, *River Corridor Character*, *Traditional Dublin Character*, and *Urban/Village Character* ~~and Dublin Character~~. Each category includes a description of the elements commonly present that contribute to specific roadway character type. The Community Plan provides ~~a determination of~~guidance as to what major elements should be incorporated to achieve the vision. Individual roadways may change in character along the way; some segments may serve as transitional corridors, with unique and distinctive combinations of recommended design elements.

Rural Character

This character results from the cultural and historic use of the region for agricultural purposes. The roadways are typical of unincorporated areas or old township roads and are informal, evoking a sense of the past prior to development and include the following:

- Application of generous setbacks ranging from 100 to 200 feet;
- Integration of open views and vistas into adjacent development perhaps greater than 200 feet in some areas to increase the sense of openness;
- Provision of informal landscaping that focuses on native plant species and naturalized forms (meadows, wildflowers, grasses, wetland areas etc.);
- Use of trees, fencerows and woodland plantings to provide additional screening and sense of enclosure;
- Preservation of historic farmsteads, barns or outbuildings that emphasize the agrarian history of the area;
- Creation of meandering bike paths and sidewalks that are informally designed as to not be entirely visible from the roadway;
- Design of naturalized ponds with aquatic plants and informal edges;
- Use of stone walls and split rail fences that are traditionally used in the countryside;
- Integration of "rural" road design that may include berms, swales and/or variable medians; and
- Provision of shared entrances to minimize curbcuts and maintain openness.

River Corridor Character

This character is primarily the result of natural processes on the land over the course of many years. The river corridor possesses dramatic topographical changes, is heavily wooded and includes the Scioto River and its tributaries.

- Use of modest setbacks ranging from 60 to 100 feet;
- Creation of roadway width and alignment to follow stream corridors or respond to existing natural features;
- Use of woodland plantings and incorporation of landforms to create topographic change and shape views;
- Integration of stone walls and stone outcrops to provide ties to surrounding topography;
- Design of informal water features to blend with the surrounding character of the river corridor;
- Use of swales and berms instead of constructed curb and gutter for informal feel; and
- Installation of informal landscape designs to enhance the natural appearance along the river corridor.

Village Character

~~This character is based on traditional village development that includes street patterns of regularly spaced blocks in a grid pattern framed by richly detailed architecture. The scale is highly pedestrian, with cars and people sharing limited space.~~

- ~~• Provision of smaller building setbacks ranging from 0 to 25 feet~~
- ~~• Use of pedestrian-oriented streetscapes with narrower travel lanes and on-street parking~~
- ~~• Creation of grid-like street pattern to enhance ability to walk~~
- ~~• Design of off-street parking to the side and rear of buildings~~
- ~~• Integration of service alleys and rear garage access to improve pedestrian character of streets~~
- ~~• Creation of formal pedestrian sidewalks~~
- ~~• Use of small parks, plazas, and public spaces to provide character~~
- ~~• Focus on architectural detailing and pedestrian-scale signs~~
- ~~• Integration of street lights and furniture (benches, waste receptacles, bike racks, etc.)~~
- ~~• Use of picket fences, wrought iron, gates, arbors or similar elements to add detailing~~

Traditional Dublin Character

This character exemplifies the high quality standards by which Dublin's primary roadways have been designed, built and landscaped over the past several decades to provide a very formalized and maintained roadway.

- Use of 100-foot setbacks or equivalent to blend with surrounding developments;
- Design of curvilinear roads with landscaped medians and meandering bike paths;
- Installation of formal, maintained landscape treatments;
- Focus on ponds and water features with maintained and/or hardscaped edges;
- Use of variable mounding with landscaping to screen uses along roadways; and
- Primarily curb and gutter design, but may include swales and berms.

~~VII.~~

Urban/Village Character

Streets are a community's "front porch." They are the city's most common form of open space, providing important opportunities for entertainment, recreation, and gathering. In Historic Dublin and more densely developed areas, streets serve as public gathering places and venues for commercial activity. Streets characterized as urban safely accommodate bicyclists and pedestrians to encourage non-motorized forms of travel; the scale is highly pedestrian with cars and people sharing limited space. The urban street character is based on traditional village and modern mixed use development patterns that include grid street networks with regularly spaced blocks framed by richly detailed architecture. In addition, Urban Character streets:

- Apply street designs that are sensitive to the surrounding land uses and development context;
- Create a grid-like street pattern to distribute traffic and allow pedestrians to walk to destinations using multiple routes;
- Use narrower streets and travel lanes to reduce travel speeds;
- Include on-street parking to provide a physical and psychological buffer between travel lanes and sidewalks, reducing the perceived travel lane widths for vehicles and making pedestrians feel safer on sidewalks;
- Are designed with off-street parking to the side and rear of buildings;
- Include service alleys and side or rear garage access to improve pedestrian character of streets;

- Are typically designed to accommodate safe bicycle travel within standard vehicular travel lanes; separate bikeway facilities (e.g. cycle tracks, sharrows and/or bike lanes) may be appropriate on higher volume roadways or as part of designated bicycle routes;
- Provide transit facilities and sidewalk curb extensions at bus stops;
- Provide smaller building setbacks ranging from 0 to 25 feet to enhance the relationship between buildings and the streetscape; setback areas may be designed as an extension of the streetscape, landscape areas or patios, as appropriate to the development context;
- Are framed by buildings designed with ground story transparency (i.e. windows), main entrances connected to sidewalks, and a high degree of architectural detailing to create an inviting, pedestrian-friendly walking experience;
- Offer sidewalk widths appropriate for the activities and pedestrian volumes along the street, while at a minimum providing sidewalks with universally accessible widths, cross-slopes, grades, and surfaces;
- Contain pedestrian-scaled street lighting in addition to roadway lighting;
- Include street trees and planting zones to buffer pedestrians from traffic, provide shade and visually soften hardscape areas;
- Use small parks, plazas, patios, and public spaces to provide character along the streetscape and reinforce the street's role as a gathering space as well as a transportation route;
- Provide pedestrian amenities such as seating, news racks, recycling bins, water fountains, outdoor cafes, retail displays, and public art;
- Are complemented by pedestrian-oriented signs integrated with adjacent architecture;
- Integrate sustainable stormwater management within the streetscape using curb inlets, bioretention swales, tree and planter boxes, and permeable pavements; and
- Are framed by low masonry 'street walls', wrought iron fences, hedges, picket fences and gates, arbors or similar elements as appropriate to the village or urban setting, to add detailing and to help define the street's public realm where buildings are not immediately adjacent to the sidewalk (such as along parking areas).

Objectives and Strategies (Transportation)

Objective 1: Implement the Thoroughfare Plan with development opportunities to ensure that roadway improvements are committed.

When a new development generates enough traffic to require additional road or intersection capacity, the need to coordinate transportation elements and new land uses becomes critical. The Thoroughfare Plan is based upon the Future Land Use Map, and roads are constructed, phased and/or deferred according to the

Plan. It is extremely important that adopted land uses and transportation networks be monitored over time to account for variations in land use and traffic patterns.

- A. *Maintain Capital Budgets...* that aggressively and responsibly provide for future roadway improvements. The City should make good faith efforts to address existing deficiencies and future needs and ensure that private developments address transportation impacts.
- B. *Comply with the Future Land Use Map...* and its development potential to manage the impacts of new development on the road network.
- C. *Coordinate with Development...* to obtain roadway improvements that mitigate associated transportation and fiscal impacts through established funding methods in the capital budget process.
- D. *Continue Modeling Efforts...* into the future to monitor land use and transportation needs and evaluate the impact of potential changes to the adopted Future Land Use Map and Thoroughfare Plan.

Objective 2: Maintain an acceptable balance between public and private sector responsibilities for roadway improvements.

The fiscal analysis of the Community Plan demonstrates that the City cannot bear all of the costs for necessary road improvements and maintain its financial strength. Impacts to the community's transportation network should be considered as a development cost for projects. A clear balance between responsible and managed growth and the impacts of such projects should be achieved.

- A. *Assess Private Development...* for its fair share of base transportation costs, according to the Thoroughfare Plan, particularly for major road improvements such as bridges and underpasses. Proportional costs should be based on studies [or other means](#) acceptable to the City.
- B. *Utilize Use City Participation...* in transportation improvements when the project or development contributes to greater community-wide objectives.
- C. *Require Traffic Impact Studies...* for ~~all~~ developments [outside the Bridge Street and West Innovation Districts](#) that significantly increase peak hour traffic or create operational conflicts or impacts such as turning movements, driveway locations, etc. Studies will determine the magnitude of roadway improvements required to accommodate traffic generated by the proposed development while maintaining acceptable service standards. [For projects within the Bridge Street and West Innovation Districts, other studies are planned to determine the magnitude and timing of roadway improvements necessary to accommodate the traffic generated by the proposed development.](#)
- D. *Utilize Use Financial Mechanisms...* such as Tax Increment Financing (TIF) to facilitate major transportation projects as part of private development.

Objective 3: Maintain a quality LOS standard for Dublin's network, while acknowledging the need to consider alternative mechanisms for major intersections with congestion and capacity issues.

Traffic congestion is consistently identified by Dublin residents as a concern, despite major improvements such as Emerald Parkway, Hard Road and bridge upgrades and connections. As the Dublin area develops, levels of traffic moving through the City will continue to increase. The desire to attract businesses that generate revenue to support quality services also creates additional traffic impacts. As a result, some major intersections and corridors within Dublin will experience traffic congestion and delay during traditional peak hours despite future improvements. To maintain the City's attractiveness as a premier employment and residential location, Dublin must provide acceptable and reasonable LOS standards while maintaining a balance with other quality of life issues.

- A. *Apply Minimum Base Standards...* of LOS "C" to activities pertaining to municipal street and roadway improvements unless a lower LOS is acceptable to the City under extenuating circumstances in key corridors. Phasing of development within specified time horizons may be acceptable.
- B. *Set Private Development Requirements...* for new projects and significant expansions of existing developments contingent upon maintaining an LOS "D".
- C. *Consider Alternative Mechanisms...* such as extended peak periods and innovative design options for key intersections that will always have LOS issues.
- D. *Promote Travel Demand Management (TDM) Policies... that will reward companies that choose to reduce the amount of traffic they generate during peak periods. Monitor the effectiveness of TDM-based parking incentives in the Bridge Street District zoning regulations.*

Objective 4: Balance the needs of traffic capacity and roadway aesthetics.

Providing ample roadways for efficient vehicle travel is weighed heavily in the planning and design process. However, road design must take into consideration the character of surrounding areas. The maximum desirable roadway footprint for Dublin is a four/five lane divided roadway, and it is likely that LOS "F" will occur at many key intersections during peak hours. This will result in due to longer queues and increased delays that may trigger greater driver frustration. Over time, drivers will likely alter schedules or driving habits, and the peak will be extended beyond traditional hours into a peak period.

Building larger roads and intersections mainly serves economic development purposes and corporate residents. While corporate residents provide a critical base to the success of Dublin, the traffic generated by these businesses is not present during evening hours and weekends. Outside of normal business hours, driving through expansive roadways and intersections meant to minimize delay only in the peak hour is considered as unnecessary. Wider roads and intersections also create the need for greater long-term maintenance efforts and costs. The goals of trying to maintain character, reduce congestion, and minimize long-term maintenance often conflict and result in the need for acceptable compromise.

- A. *Consider Visual Impacts...* to the area as part of the design process. Road design should be sensitive to surrounding character and environment and should balance both community character and mobility.
- B. *Allow Lower Travel Efficiency...* to create a balance between many competing needs by recognizing that community character, sense of place, surrounding land uses, as well as the efficient movement of traffic are all important elements. This may result in ~~slightly~~ lower levels of service during peak periods, but upholds the community value of preserving visual character.
- C. ~~Utilize~~Use *Alternative Roadway Design...* for unique site constraints. Wherever possible and practical, retain wooded areas in or near roadways and design roadways to fit the surrounding topography. If bedrock is a known constraint, consider other roadway design alternatives such as open ditches rather than curb and gutter.

Objective 5: ~~Utilize~~Use roadway improvements (where appropriate) to increase roadway capacity and safety, while reducing peak hour congestion.

Major road capacity improvements are expensive, and excess capacity is often rapidly absorbed by induced traffic. Some significant improvements in traffic operations can be achieved through focused, low-cost improvements rather than with extensive road widening projects. The merits of both options should be carefully considered.

- A. *Implement Operational Improvements...* to the transportation network that include low-cost projects such as improved signal timing and intersection signing, markings, minor widenings, channelization and turn restrictions.
- B. *Manage Access Points...* onto arterials and major collectors to provide for adequate, safe and properly designed entrances and exits to and from developments.
- C. ~~Utilize~~Use *Alternative Design Solutions...* such as roundabouts and other non-traditional features to provide for added movement and capacity in instances where traditional signalization cannot achieve an adequate LOS or where safety is a factor.
- D. *Consider Aesthetic Impacts...* that improvements such as widening or additional lanes may visually have on roadway corridors with defined visual character (Map 4.11).
- E. *Balance Transportation and Planning Objectives...* ~~by identifying where road~~to determine the best and most appropriate roadway widening projects and ~~other~~infrastructure improvements ~~may not be appropriate or feasible~~.

Objective 6: Maximize the connectivity of Dublin's roadway network.

Transportation systems with numerous interconnections offer more direct routes and serve to disperse traffic rather than to concentrate it on major arterials at a few intersections. Arterials should primarily

serve through-traffic and access to Dublin's employment centers, while residents should have multiple means of access to daily services with reasonable ease. Networks with many connections also encourage walking and are more transit-friendly than a traditional collector and cul-de-sac network. Policy decisions regarding road connectivity should take into account the effects on the community as a whole while ensuring sensitivity for neighborhoods.

A. *Require Multiple Routes and Connection Points...* ~~within new developments and to the surrounding area by providing links to surrounding roadways~~ to establish greater travel options for residents:

~~B. *Provide Multiple Routes*...~~ ~~for and employees through the creation of~~ internal circulation streets ~~to major activity areas~~ within new developments that link to surrounding roadways and adjacent ~~to~~ development areas.

~~C~~development areas. B. *Require Internal Connections*... through cross-access easements between non-residential (e.g. office and commercial) developments to minimize traffic on arterial and collector streets.

~~D~~B. *Discourage Cul-de-sacs*... when loop streets and other site layouts or configurations can be provided to enhance street connections and route choices to evenly disperse traffic on the transportation network.

~~E~~C. *Extend Existing Street Stubs*... in conjunction with adjacent development to benefit the larger transportation system by providing better access for residents within those neighborhoods.

~~F~~D. *Cautiously Consider Modifications*... to residential collectors that serve neighborhoods and provide access to Dublin's residential areas.

~~G~~E. *Discourage Access*... for non-residential and higher density development through residential and/or lower density development, while providing connections to these uses and services for the benefit of surrounding neighborhoods.

Objective 7: Ensure that road improvements minimize adverse impacts in sensitive areas and balance roadway design with community character and visual appeal.

The protection of historic, environmental or aesthetically important areas has an important value to the Dublin community. The Thoroughfare Plan reflects this value through the location of new roads and the widths of planned rights-of-way. Location and design of new improvements should be considered with respect to the intended scenic/visual character and the quality of the public right-of-way. Other smaller-scale considerations in road design also impact the visual quality of future improvements.

A. *Assess and Mitigate Potential Impacts*... of future road improvements and/or new construction on historic and environmentally sensitive areas, as well as the visual appearance of the road corridor.

- B. *Provide Adequate Buffering...* and setbacks between improvements and historic or environmental areas to maintain their visual and physical integrity.
- C. *Provide Adequate Landscaping...* such as planting areas, mounding, wall treatments or other design techniques to integrate road improvements into sensitive areas.
- D. *Sensitively Integrate Stormwater Management...* from road improvements and consider alternative techniques, where possible, to ensure the integrity of historic sites and environmentally sensitive areas are not compromised.

Objective 8: Promote alternatives to the single-occupant vehicle within the ~~City~~city.

While most of Central Ohio (and particularly Dublin) is auto-oriented, reducing dependence on automobiles is desirable to extend the capacity of the ~~City's~~city's road network. There is increasing recognition within the region that substantial multi-jurisdictional efforts will be necessary to reduce road congestion by shifting trips away from single-occupancy trips and from peak travel hours.

~~A. *Expand Transit Service...* in the Dublin area to provide more convenient opportunities for potential users and to provide alternative modes of travel to employment centers within the City. It will be important to work with COTA and other organizations to implement regional transit plans.~~

~~B.A. *Promote Walking and Biking...* through design standards that provide for safe travel routes and facilities.~~

~~B. *Reduce Peak Trips...* by encouraging staggered shifts, flextime and compressed weeks, as well as allowing peak periods rather than a peak hour for congested corridors.~~

C. *Develop Broader Partnerships...* with regional planning bodies such as the Mid Ohio Regional Planning Commission (MORPC) and the Logan-Union-Champaign (LUC) Regional Planning Commission, COTA, affected counties and neighboring jurisdictions in efforts to support and encourage ride-sharing programs and local circulators to park and ride lots and public transit stops.

~~C. *Promote Walking and Biking...* through design standards that provide for safe travel routes and facilities.~~

~~D. *Reduce Peak Trips...* by encouraging staggered shifts, flextime and compressed weeks, as well as allowing peak periods rather than a peak hour for congested corridors.~~

~~D. *Expand Transit Service...* in the Dublin area to provide more convenient opportunities for potential users and to provide alternative modes of travel to employment centers within the city. It will be important to work with COTA and other organizations to influence and implement regional transit plans.~~

- E. *Encourage Higher Density Development...* in targeted areas ~~of employment~~ that will support the integration of additional local and circulator bus routes, particularly along the SR 161 corridor between ~~Sawmill Road~~ the Bridge Street and the ~~Central Ohio West~~ Innovation ~~Center~~ Districts.
- F. *Protect Future ~~Rail~~ Transit Options...* that would maintain the opportunity for the long-term implementation of light rail or other transit options by obtaining additional rights-of-way and sites for potential station/terminal locations.
- G. *Enhance Transit Ridership...* by helping to facilitate sites to serve as future park and ride locations that can reduce arterial trips and reliance on the automobile.

Objective 9: Work cooperatively with surrounding jurisdictions to coordinate regional transportation planning and programming.

Traffic in Dublin affects, and is significantly affected by, regional traffic patterns. The ability to facilitate regional cooperation efforts and to respond to shared transportation problems will be an essential role for the City as areas around Dublin develop.

- A. ~~Aggressively~~ *Explore Additional Bridge Locations...* ~~outside Dublin with surrounding jurisdictions~~ that will meet local connectivity and regional transportation needs.
- B. *Coordinate Transportation Plans/Projects...* by maintaining and further developing positive relationships with County Engineers to plan transportation improvements that benefit all area residents.
- C. *Monitor Area Developments...* and work cooperatively with surrounding jurisdictions to ensure that private development adequately accounts for expected traffic impacts.
- D. *Encourage Delaware County...* to develop the Home Road/Lewis Center Road corridor as a primary regional east-west route to alleviate impacts on the Dublin transportation system.
- E. *Partner with Union County...* to enhance the U.S. 33 corridor and surrounding roadways and interchanges within Dublin's planning area to provide greater access to area businesses and to create an improved regional transportation network that better disperses traffic.
- F. *Encourage State of Ohio and City of Columbus Officials...* to address transportation issues in the US 33/SR 161 corridor at the I-270 interchange along with the Sawmill Road corridor north of the I-270 interchange to enhance service and access for Dublin area residents and businesses.

Objective 10: Proactively address key long-term components of the Thoroughfare Plan.

Since 1997, the City has aggressively addressed many improvements that have greatly increased the capacity and connectivity of the arterial network. As Dublin continues to grow and mature, the need to manage transportation improvements and plan for future growth and economic development

opportunities will be essential to maintain a suitable roadway network at an acceptable level of service. As part of the overall transportation management program, the City should take measures to ensure that necessary improvements can be made at a reasonable cost.

- A. *Target and Reserve Land...* necessary to provide for future interchange improvements at U.S. 33 and Mitchell-Dewitt Road.
- B. *Acquire Additional Rights-of-way* ~~Way~~... necessary to complete future capacity improvements at [key locations such as the Avery-Muirfield Drive interchange with U.S. 33 and new bridges over the Scioto River between SR 161 and Emerald Parkway identified during the Bridge Street District planning process.](#)
- C. *Maintain Development Buffers...* to allow for the reconstruction of the I-270/U.S. 33 interchange in acknowledgement of the MORPC/ODOT Major Investment Study (MIS) for the I-270 corridor.
- D. *Continue Capital Project Prioritization...* in the annual Capital Improvements Program (CIP) to emphasize transportation projects that will maintain overall service to Dublin's residents and business community.

Objective 11: Promote bicycle and pedestrian mobility in and through Dublin.

Bicycling offers a healthy travel alternative to the automobile and can function as a multi-modal link or simply as a popular recreational activity. A greater proportion of the population could take part if necessary facilities and connections were available to enhance bicycle safety and convenience. Dublin's bikeway system must overcome man-made and natural barriers to link all parts of the [City](#) ~~city~~. Major activity centers should be linked, and both recreational and commuter cycling should be accommodated. The Dublin system is an important part of a regional network designed to provide alternative transportation modes. Designated routes must be well marked and maintained to ensure a safe and efficient cycling and pedestrian environment.

- A. ~~Utilize~~ [Use](#) *Adopted Plans...* such as the Community Plan and the Parks and Recreation Master Plan to provide for comprehensive bicycle facility planning that is clearly and systematically linked to capital funding cycles.
- B. *Require Construction of Facilities...* such as paths, crossings, tunnels, lanes, bike racks, etc. as part of the zoning and development process and throughout public parks, greenways and destinations. Incorporation of safe crossing points with major roads and intersections should be emphasized.
- C. *Integrate Bicycle Planning...* with overall transit planning to ensure coordination between the municipal path system and key transit stops to encourage multi-modal options.
- D. *Emphasize [Bike](#) ~~Shared~~ [Use](#) Path Connectivity...* to facilitate safe [City](#) ~~city~~-wide routes, particularly to Dublin's schools, parks, recreation facilities, regional metro parks and other points of interest. Major

activity and employment centers should be linked, and focus should be maintained to connect missing path segments within the overall system.

- E. Consider ~~Bike Shared Use Paths and~~ Bike Lanes, Shared Use Lanes, and Cycle Tracks... as part of right-of-way design to provide greater access to major activity and employment areas as an alternative means of commuting/travel. Develop design standards and criteria for these and other bicycle facilities.
- F. *Facilitate Regional Connections*... to assist in creating a multi-jurisdictional bikeway system by coordinating the extension of bike paths and lanes into adjacent townships and municipalities.
- G. *Establish Working Partnerships*... with area jurisdictions and statewide agencies or organizations such as the Environment Fund of Ohio, Ohio Department of Natural Resources, Ohio Parks and Recreation Association, ODOT, MORPC, Ohio Greenways, and Rails-to-Trails Conservancy to coordinate bikeway projects and to seek out broader funding sources.
- H. ~~Budget for~~ Continue to provide Continued Maintenance ~~---~~ funds in the Budget... for annual upkeep of the bikeway system to ~~provide for annual upkeep and to~~ ensure a high quality riding environment.
- I. ~~Consider~~ Monitor Bicycle Parking Requirements... within the ~~Zoning Code that could promote~~ Bridge Street and West Innovation Districts zoning regulations to ensure their effectiveness in promoting bicycle facilities travel to and within these areas. Consider additional bicycle parking requirements throughout the city as an incentive to a means to further incentivize alternative travel modes and reduce parking lot pavement, maximize greenspace and promote alternative transportation methods.
- J. *Promote Bicycle Education*... within the community to encourage increased and safer recreational and commuter bicycle ~~usage~~ use for various ages and abilities.
- K. ~~Create~~ Develop a Comprehensive ~~Sign Programs...~~ for the Wayfinding System... identifying bikeway routes throughout the city. Bikeway network wayfinding will increase the comfort level for bicyclists of varying levels of experience, and conflict points to provide ~~for the~~ additional visibility and awareness to motorists and cyclists.
- L. Encourage Bicycling as a Form of Transportation... through incentives and programs which raise awareness of bicycling and mode shift options as well as safe ~~and efficient movement of bicycles throughout the City~~ bicycling behaviors. Continually evaluate the effectiveness of the city's bicycle initiatives.
- M. Prioritize Recommendations of the Bicycle Advisory Task Force... to ensure suggested bicycle-oriented programs and facilities are coordinated with other city initiatives and capital improvements needs. Achievement of the Bicycle Friendly Community designation from the League of American Bicyclists provides a concrete goal that will also involve implementation of many other BATF recommendations.

|