City of Dublin

Office of the City Manager
5200 Emerald Parkway• Dublin, OH 43017
Phone: 614-410-4400

Memo

To: Members of Dublin City Council

From: Marsha I. Grigsby, City Manager

Date: December 4, 2014

Initiated By: Megan O'Callaghan, PE, Director of Public Service
Mandy K. Bishop, PE, Bridge Street District Program Management Consultant
Dan Weis, Bridge Street District Program Management Consultant

Re: 2015 Major Transportation Construction Projects Update – Maintenance of Traffic Options and Schedule

BACKGROUND

This memo is being provided in furtherance of staff's commitment to provide timely updates as information becomes available regarding the following major transportation construction projects planned for 2015:

1. Riverside Drive Realignment; and
2. SR 161/ Riverside Drive Intersection Improvement - Roundabout.

Memoranda regarding this topic were provided to City Council as part of the August 25, 2014 and November 3, 2014 council packets and are attached for reference. Information was also shared in a presentation during the September 8, 2014 City Council meeting and the November 18, 2014 Leadership Briefing.

Design of both of these projects started in June 2014. At the time of the September 8, 2014 presentation to City Council, construction plans were developed to approximately 40%. Maintenance of traffic plans had not yet been developed. Staff noted that much better information regarding traffic maintenance would be forthcoming as the plans are further developed over the next couple of months. Based on the level of plan completion for the **SR 161/Riverside Drive Intersection Improvement – Roundabout** project at that time, construction of the roundabout was anticipated to most likely require a full closure of the SR 161/Riverside Drive intersection for some period of time in order to complete the project within a single construction year. It was also anticipated one northbound and one southbound lane would be maintained on the bypass under the Bridge Street bridge over the Scioto River. At that time, it was uncertain if one lane of traffic could be maintained on SR 161 in the eastbound and westbound directions while opening the completed project to traffic in one construction season. Staff explained that such opportunities would be better understood by further developing the construction plans over the next couple of months.

Based on the level of plan completion for the **Riverside Drive Realignment** project in September, it was anticipated the project would require one (1) construction season to be open to traffic with various finish work outside the traffic lanes continuing into another construction season. It was noted that the realigned Riverside Drive must be open to traffic in order for the proposed SR 161/Riverside Drive intersection roundabout to be fully functional.
City Council requested that staff evaluate alternatives to closing the SR 161/Riverside Drive

intersection for an extended period of time during the reconstruction of the intersection and evaluate opportunities for expediting construction.

SUMMARY

American Structurepoint, the design consultant for the SR 161/Riverside Drive Intersection Improvement – Roundabout project, and EMH&T, the design consultant for the Riverside Drive Realignment project continue to advance construction plan development so that project and maintenance of traffic sequencing and phasing can be better defined. Staff received the sixty percent (60%) construction plan submittal for both projects in mid-October 2014. Staff has reviewed these plan submittals in detail and provided comments to the designers to allow for the continuation of the design.

The additional detail that is contained in these plan submissions has allowed the Program Management Consultant (PMC) to more fully sequence the construction phases, evaluate the duration of each construction phase, and understand the feasibility and schedule impacts of different maintenance of traffic alternatives as well as the effects of accelerating the projects.

Two maintenance of traffic scenarios have been further developed and the impacts of accelerating each option have been evaluated.

1. Option 1 – Maintains **one lane** eastbound and westbound as well as **one lane** northbound and southbound on the bypass lanes; and
2. Option 2 – Maintains one lane northbound and southbound on the bypass lanes. Closes the SR 161/Riverside Drive intersection for some extended period of time. This is similar to the option discussed at the September 8 City Council meeting.

General Observations

Before discussing the maintenance of traffic options, it is important to be aware of the following:

- Construction of the Riverside Drive Realignment project takes longer than construction of the SR 161/Riverside Drive Roundabout.
- The Riverside Drive Realignment project is essentially the "north leg" of the SR 161/ Riverside Drive Roundabout project.
  - This is important to be aware of because for all movements and lanes in the SR 161/Riverside Drive Roundabout to be open to traffic, the Riverside Drive Realignment must be open to traffic as well.
- The projects' maintenance of traffic plans are dependent upon each other.
  - Although the Riverside Drive Realignment and the SR 161/Riverside Drive Roundabout are two projects, they must be considered together for maintenance of traffic purposes.
- Safety is a priority. It is critical that the projects be constructed in a safe manner for the traveling public and contractors working to build the improvements.
- An overarching goal has been to minimize traffic impacts.
- Another overarching goal is to open as many lanes as possible to traffic in as short of time period as reasonably possible (e.g. single construction season).
- The granite curb procurement and installation is one of the main drivers of the construction duration.
- Work (e.g. sidewalks, hardscape, landscape, etc.) will continue into 2016;
- Innovative contracting tools (e.g. accelerating, requiring round the clock work days, incentives, etc.) have been, and will continue to be, considered.

- Staff has been advancing the Riverside Drive Realignment and the SR 161/Riverside Drive Roundabout projects so that construction could possibly begin as early as March 2015. The analyses are based upon issuing a Notice to Proceed to the contractor in mid-March. Utility relocations and project scope decisions affecting the design may result in this date shifting accordingly.

Constructability Review, Schedule Analysis, and Maintenance of Traffic

The following maintenance of traffic options have been developed and evaluated based on the current level of construction plan completion. All options maintain access for emergency vehicles at all times.

Option 1 - Maintain **one lane** eastbound and westbound as well as **one lane** northbound and southbound on the bypass lanes. The level of design and constructability information now available confirms there are safe and appropriate methods to accomplish this approach.
As discussed above, Option 1 maintains one lane of traffic in all directions and is based on the following conditions:

- A standard 40 hour work week calendar;
- A project start date of March 16, 2015 for issuance of the Notice to Proceed (NTP) to the Contractor;
- Consideration for weather days;
- Seasonal restrictions of specified work; and
- Standard resource levels (e.g. people, equipment, crews).

The construction sequencing would be as follows:

1. Work would begin on the bypass lanes with the installation of storm sewer and pavement widening to accommodate future maintenance of traffic.
    - This work is anticipated to take approximately 11 weeks.
    - Work could also begin on the realigned section of Riverside Drive that does not conflict with the existing Riverside Drive. This work would continue throughout the project.
2. Work would then commence in the SR 161/Riverside Drive intersection in the westbound lanes (north side of the intersection) as well as the southern leg of Riverside Drive south of SR 161. Northbound and southbound traffic would be diverted to the bypass lanes.
3. Work would then switch to the eastbound lanes (south side of the intersection). Eastbound and westbound traffic would be maintained on the north side of the intersection.
4. Work in the roundabout would require short term intermittent closures to finish the roundabout and splitter islands.
5. Work to tie-in realigned Riverside Drive to existing Riverside Drive would commence and the bypass would be upgraded to include one vehicular lane and the new walking path.

Without any acceleration or incentivizing, it is anticipated this option will result in all lanes except the new single bypass lane being open to traffic in all directions approximately 15 months (June 2016) after the contractor is authorized to begin work (NTP issued). However, because the bypass lane would be made available to maintain north-south traffic during the previous stages of overall project construction, the bypass would require an additional four months to finish, with completion in October 2016. This schedule does not account for any delays, including utility, unforeseen field conditions, material deliveries, etc. As with most construction projects, it is likely there will be some level of these types of unforeseeable delays.

Overall, the projects implemented under the Option 1 approach would take approximately 19 months to complete. As a frame of reference, the Home Road/SR 745 Roundabout project that was recently completed in Delaware County took 15 months to construct which included a winter shutdown.

Option 1 (a) *Utilizing Innovative Contracting Tools*
Selectively requiring and incentivizing certain work elements (e.g. the work in the roundabout) could provide the ability to fully open all lanes to traffic in both directions on SR 161 by the end of the 2015 construction season. This Option 1(a) approach would assume the contractor would be permitted intermittent closures during the night and on the weekends. Based on the 60% construction plan submittals and the results of the constructability and schedule analysis, this option would require approximately four months of selective acceleration in order to open all lanes in both directions on SR 161. The PMC anticipates the cost associated with this acceleration effort to be approximately $375,000.

Based on the PMC's evaluation, it would be unrealistic to attempt to accelerate the work required for all lanes to be open to traffic on both SR 161 and Riverside Drive in a single season. This approach was evaluated and it was determined that there would simply have to be too many crews in the work area for such an approach to be productive.

Staff will continue to evaluate options requiring and incentivizing work elements as the construction plans are further developed.

Option 2 - Maintain one lane northbound and southbound on the bypass lanes. Close the SR 161/Riverside Drive intersection for some extended period of time.
As discussed above, Option 2 maintains one lane northbound and southbound throughout the project and closes the SR 161/Riverside Drive intersection to traffic. Similar to Option 1, Option 2 is based on the following conditions:

- A standard 40-hour work week calendar;
- A project start date of March 16, 2015 for issuance of the Notice to Proceed to the Contractor;
- Consideration for weather days;
- Seasonal restrictions of specified work; and
- Standard resource levels (e.g. people, equipment, crews).

The construction sequencing would be as follows:

1. Work would begin on the bypass lanes with the installation of storm sewer and pavement widening to accommodate future maintenance of traffic.
    - This work is anticipated to take approximately 11 weeks.
    - Work can also begin on the section of Riverside Drive that does not conflict with the existing Riverside Drive. This work would continue throughout the project.
2. Work would then commence in the SR 161/Riverside Drive intersection in the westbound lanes (north side of the intersection) as well as the southern leg of Riverside Drive south of SR 161. Northbound and southbound traffic would be diverted to the bypass lanes.
3. Once work on the bypass is completed and open to traffic, traffic would be restricted to one lane eastbound and westbound for a period of about 12 weeks
4. The SR 161/Riverside Drive intersection would be closed after the restriction for about 10 weeks with the new roundabout opening in late Fall of 2015.

- Work continues on the section of Riverside Drive that does not conflict with existing Riverside Drive.

6. As in Option 1, work to tie-in realigned Riverside Drive to existing Riverside Drive would commence and the bypass would be upgraded to include one vehicular lane and the new walking path with work finishing in September 2016.

Without any acceleration or incentivizing, it is anticipated this option will result in two lanes eastbound and westbound being closed to traffic until approximately eight months after the contractor is authorized to begin work. It is also anticipated the contractor would still be onsite for an additional 10 months to complete work outside of the driving lanes and to place the surface course of asphalt. Overall, it is anticipated the projects would take approximately 19 months to complete. This is virtually the same overall duration as Option 1, so very little time is saved, and substantially greater traffic disruption occurs. The overall duration is the same in both options because it is now apparent that the length of the job is driven by the time required to construct the Riverside Drive Realignment, and not the time for roundabout construction. The primary difference between Option 1 and Option 2 is the anticipated lane closures would reduce the roundabout work by two months. This schedule does not account for any delays including utility, unforeseen field conditions, material deliveries, etc. As with most construction projects it is likely there will be some level of these types of unforeseeable delays. Any delays occurring with this option would likely delay the completion of all movements being open to traffic into a 2016 potentially leaving the intersection closed to traffic over the winter months.

Option 2(a) *Utilizing Innovative Contracting Tools*

Similar to Option 1, selectively requiring and incentivizing certain work elements (e.g. the work in the roundabout) to fully open all lanes in both directions on SR 161 by the end of the 2015 construction season is likely to be attainable by the end of 2015. Based on the 60% construction plan submittals and the results of the constructability and schedule analysis, this would require approximately three months of selective acceleration in order to open all lanes in both directions on SR 161. The PMC anticipates the cost associated with this acceleration to be approximately $270,000.

Based on the PMC's evaluation, it would be unrealistic to attempt to accelerate the work required for all lanes to be open to traffic on both SR 161 and Riverside Drive in a single season. This approach was evaluated and it was determined that there would simply have to be too many crews in the work area for such an approach to be productive.

RECOMMENDATION

Early in the planning and design phase of these projects it had been assumed that closing the SR 161/Riverside Drive intersection for an extended period would present the shortest disruption to traffic, as the project could be completed more quickly. It was also felt that the closure of this traffic route would provide safer conditions for both motorists traveling through the construction zone and the construction workers. Based on the additional details we now have available and the in-depth sequencing and scheduling effort, the benefits of the closure of SR 161/Riverside Drive in order to reopen all movements to traffic are no longer as apparent. Based on the 60% construction plans, it now appears safe to assume that the project is likely to occur over two construction seasons with or without the highly disruptive closures.

Based on the information available at this time, staff recommends further developing and designing Option 1 as the preferred option, which would maintain one lane in both the eastbound

and westbound directions as well as one lane in both the northbound and southbound directions on the bypass lanes. In addition, staff recommends utilizing innovative contracting methods to incentivize the project work elements to open all eastbound and westbound lanes of traffic on SR 161 by the end of 2015, as outlined in Option 1 (a).

The ninety percent (90%) plan submissions are due in mid-December 2014 for both projects. Staff will continue evaluating and refining maintenance of traffic information and share it with City Council as it develops.

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Memo

To: Members of Dublin City Council

From: Marsha I. Grigsby, City Manager

Date: October 30, 2014

Initiated By: Megan O'Callaghan, PE, Director of Public Service
Mandy K. Bishop, PE, Bridge Street District Program Management Consultant

Re: 2015 Major Transportation Construction Projects Update

Background

Staff provided a memorandum regarding the major transportation construction projects planned for 2015 to City Council as part of the August 25, 2014 Council packet. This information was also shared in the form of a presentation during the September 8, 2014 City Council meeting. Council requested that staff provide additional information as it became available with respect to the major transportation construction projects planned for 2015.

This memorandum is in furtherance of that request and is a continuation of regular updates regarding transportation construction project planning for 2015. Information is provided regarding innovative contracting methods that are being considered to motivate contractors to minimize impacts to traffic. More detailed information is also provided with regard to the timing of the I-270/US 33 Interchange Improvement, Riverside Drive Realignment, and SR 161 & Riverside Drive Roundabout projects.

Innovative Contracting Method Evaluation

Staff has been researching and evaluating innovative contracting methods for the Riverside Drive Realignment and SR 161 & Riverside Drive Roundabout projects that would motivate contractors to provide quality transportation facilities while minimizing impacts to traffic, reducing construction durations, and maintaining a competitive bidding process.

The evaluation is being conducted with two main objectives:

1) minimizing the number of days the east and westbound movements would be disallowed; and
2) completing the majority of the project work in a single construction season.

The following contracting tools have been reviewed thus far:

- Incentive/Disincentive Contract
- Quick Completion Incentive
- Lump Sum Minus Incentive
- A+B Bidding
- A+B Bidding with Multiple Sections

Several methods have been eliminated as they may not be effective for these projects including:

- An Incentive/Disincentive Contract provision is intended to motivate the contractor to complete the work or a critical portion of the work on or ahead of schedule. The owner/agency compensates the contractor a fixed amount of money for each time period the identified critical work is completed ahead of schedule and assesses a deduction for time period the contractor overruns the completion date. The owner determines the time required for the project or portion of the project. The Incentive/Disincentive amounts are based upon assessing traffic safety, traffic maintenance and road user delay costs. The primary reason staff would not recommend this method is the owner must select target completion date for the project, limiting the contractors' ability to be innovative and work for the earliest project completion possible.

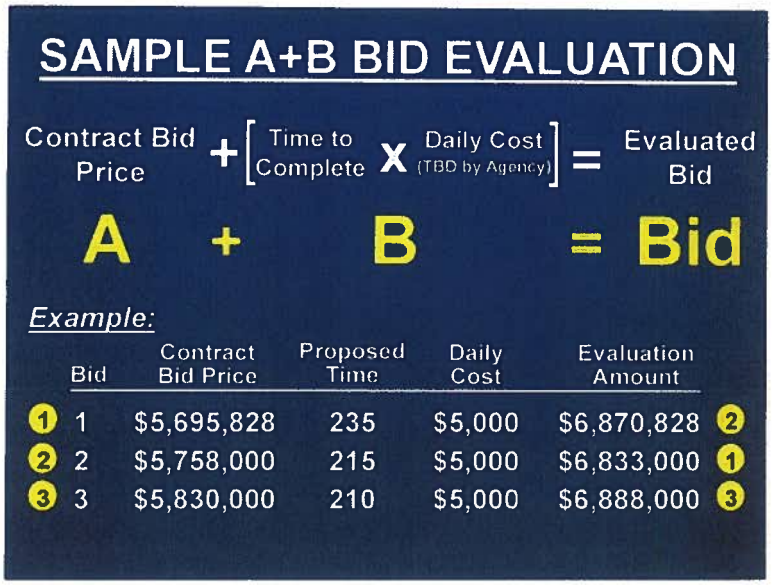
- Lump Sum Minus Incentives are similar to incentive/disincentive provisions; however, these establish a large lump sum incentive for the contractor, if a specific project or critical item of work is completed on time or ahead of schedule. Lump Sum Minus allows for time extensions due to weather days. The Lump Sum Incentive is decreased for each day the contractor overruns the completion date for the section until the Lump Sum Incentive reaches zero. After the Lump Sum Incentive is reduced to zero, the contractor is assessed Liquidated Damages. The primary reasons staff would not recommend this method is that the project interfaces and has overlapping detours with adjacent projects and the presence of private utilities may create owner- related delay, which may result in the work completion being delayed.

- Quick Completion Incentive (QCI) provides for a lump sum incentive payment to the contractor as designated in the contract for completing the work before the QCI (substantial completion) date. The QCI does not allow for time extensions due to weather days. The QCI payment will be decreased for each day the contractor overruns the completion date, until the QCI reaches zero. The primary reasons staff would not recommend this method is the project interfaces and has overlapping detours with adjacent projects and the presence of private utilities may create owner-related delay, which may result in the work completion being delayed. Further, disputes over final punch list work and substantial completion may occur.

Staff has narrowed its consideration of innovative contracting methods down to tools referred to in the industry as cost-plus-time bidding, or more commonly "A+B Bidding" or "A+B Bidding with Multiple Sections." Under the A+B bidding method, each bid submitted consists of two components:

- The "A" component is the dollar amount for all work to be performed under the contract.
- The "B" component is a "bid" of the total number of calendar days required to complete the project, as estimated by the bidder, multiplied by the daily cost (road user delay cost) as established by the owner prior to the bid.

The bid for award consideration is based on a combination of the bid for the contract items and the associated cost of time. This formula is used to determine the lowest bid for award and is not used to determine payment to the contractor. This method provides for unit price contracting as is typically utilized by the City for capital transportation projects.



A+B Bidding is used to motivate the contractor by minimizing construction time on high priority and heavily travelled projects. This encourages contractors to finish early by (1) offering bonuses for early completion and (2) assessing disincentives for late completion.

Utilizing A+B bidding with multiple sections will allow the contractor an opportunity to bid phases of work, or maintenance of traffic phases, including the number of days required to execute the work in the phase. The bid for award consideration is based on a combination of the bids for the contract items and the associated cost of time for each phase: $A + [B_1 + B_2 + B_3...] = Bid$. If the City decides to utilize this bidding method, the City would need to determine an appropriate incentive/disincentive amount.

It is also recommended that a minimum and maximum number of days be determined for each section of work prior to bidding the project. Bids that would include less than the minimum number of days, or more than the maximum number of days would be considered non-responsive.

In addition, the City is considering bidding the Riverside Drive Realignment and the SR 161 & Riverside Drive Roundabout as one contract. The benefits of bidding these projects as one contract as opposed to two separate contracts would include attracting a contractor that has more resources and is more experienced in complex work. Another benefit would be that the coordination of all the work and maintenance of traffic would be easier.

Multiple Critical Path Method schedule evaluations are being conducted to determine the timeframe associated with each traffic condition. The evaluation is considering the best case, worst case and most likely durations associated with each section. This will also provide an understanding of what opportunities exist for multiple shifts and crews in order to accelerate the complete of this work. Based on the nature of the project, the ability to accelerate utilizing multiple crews will be limited due to the limited size of the project footprint. The majority of the shortened construction duration will result from working multiple shifts. At the completion

of this evaluation, an understanding of the multiple shift premiums and additional supervision costs associated with the acceleration will be provided. This evaluation is in progress and will be completed in November.

Project Timing – I-270/US 33 Interchange Improvement Project, Riverside Drive Realignment and SR 161 & Riverside Drive Roundabout

Staff has been asked about the feasibility of constructing the I-270/US 33 Interchange Reconstruction, Riverside Drive Realignment, and SR 161 & Riverside Drive Roundabout projects within the same time frame. These projects were initiated and planned independent of one another. The planning and design efforts, as well as the availability of funding, have resulted in the opportunity to construct these projects in 2015.

As construction timing of the projects began trending towards 2015, staff sought to understand the traffic impacts and continues that effort as the design progresses.

The I-270/US 33 Interchange Improvement Project will close the US 33 bridges over I-270 for approximately four (4) months in 2015. It is anticipated that local traffic avoiding this closure will result in additional traffic on several roadways in the area, including Frantz Road, Woerner-Temple Road, Perimeter Drive, Avery Road, Avery-Muirfield Drive, and Emerald Parkway. However, staff anticipates the detours will result in decreased through traffic on SR 161. Through traffic is considered traffic originating west of the interchange on US 33/SR 161 from places such as Marysville that seeks to continue through the interchange to places such as Sawmill Road or vice versa. It is anticipated the detours of through traffic could potentially translate to between 20% and 49% fewer motorists being impacted by the SR 161 & Riverside Drive Roundabout construction project.

Further, if the Roundabout project were postponed to 2016, this would mean continued traffic impacts in 2016. Ultimately, the rationale for constructing these projects concurrently is as much about minimizing overall duration of some disruptive detours and minimizing the aggregated time of BOTH projects' impacts.

Recommendation

Information only. Additional updates will be provided as information becomes available.

City of Dublin

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Memo

To: Members of Dublin City Council

From: Marsha I. Grigsby, City Manager /mmc

Date: August 22, 2014

Initiated By: Terry D. Foegler, Director of Strategic Initiatives/Special Projects
Megan O'Callaghan, PE, Director of Public Service
Mandy K. Bishop, PE, Bridge Street District Consultant Program Manager

Re: Bridge Street District Area projects Planned for Possible Construction in 2015 – Maintenance of Traffic Impact Planning

BACKGROUND

The City of Dublin has been advancing the planning and design for multiple transportation projects throughout the City, including projects in and near the Bridge Street District (BSD). The Ohio Department of Transportation (ODOT) has also been advancing the I-270/US 33 Interchange Improvement project, which is slated for construction to begin in March 2015. This memorandum represents the most current understanding of staff and our consultants of the traffic impacts -- both related to and among these projects. It is based upon the best and latest information available, but reflects the current level of completion of the planning and design phases for these projects (for example, the roundabout construction drawings are about 40% complete as of the writing of this memorandum). Plan development is continuing and is somewhat fluid, and new information continues to emerge regularly that will likely further impact and inform the maintenance of traffic planning.

The City received the draft I-270/US 33 Interchange Improvement plans from ODOT for review and comment in June of this year. This submission included the proposed maintenance of traffic plans for the project. With the I-270/US 33 maintenance of traffic plans now more defined, staff has moved forward with reviewing the plans, providing comments to ODOT in July and developing an understanding of the broader traffic impacts of the BSD Area Transportation Projects. As the I-270/US 33 Interchange project represents the most "regional" of the planned transportation improvements, with the largest volumes of impacted traffic, it was critical to first understand the impacts of the interchange construction project on local traffic.

It is important that the traffic impacts of these and other key related transportation projects be evaluated collectively in order to understand their cumulative impacts on the entire Dublin transportation system. In that context, the City of Dublin, City of Columbus and ODOT are advancing three (3) transportation projects that are planned to begin construction in 2015.

1. The I-270/US 33 Interchange Improvement (ODOT);
2. Dublin Road South Shared-Use Path (Dublin); and,
3. Hard Road & Sawmill Road Intersection (Dublin) and Hard Road Widening (Columbus).

Similarly, some of the key BSD Area Transportation Projects, in particular the Riverside Drive Realignment and the SR 161 & Riverside Drive Intersection Improvement (the Roundabout) have culminated in planning and design efforts that would permit their construction to proceed as early

as March 2015.

1. The Riverside Drive Realignment; and,
2. The SR 161 & Riverside Drive Intersection Improvement - Roundabout.

The attached *Bridge Street District Area Projects Planned for Construction in 2015* map shows the location of all of the projects being considered in this update.

PROJECT STATUS UPDATES

The current status of the projects that are planned for construction in 2015 in the BSD area is as follows:

- **I-270/US 33 Interchange Improvement (ODOT)**

This project consists of the reconstruction of the I-270/US 33 interchange in order to eliminate the weaves within the interchange and improve the operation of the interchange. The project involves major ramp and mainline US 33 bridge reconstructions, which impact the operation of existing ramps and US 33 through movements, forcing movement closures and detours throughout the construction.

Schedule & Plan Status
The project is anticipated to begin in March 2015 and last three (3) years. The project will begin with minor shoulder work and construction of pavement in the median for crossovers. The most impactful traffic phase of the project (outlined below) will begin no earlier than June 8, 2015 and is planned to last approximately four months. The construction plans for this project are approximately 90% complete.

Traffic Impacts
During this time period, US 33 eastbound and westbound through traffic will be detoured due to the reconstruction of the US 33 bridges over I-270. Additionally, US 33 westbound to southbound and I-270 southbound to US 33 eastbound movements will be closed and traffic detoured.

The project also includes closing I-270 overnight (no earlier than 10 p.m. to no later than 6 a.m.) for four (4) weekends in June, July, August and September 2015. Other short duration, intermittent closures are anticipated to occur for Post Road at the Frantz Road/SR 161 intersection. *The City of Dublin has requested that the closures do not occur during several special events, but if the work will occur during a specified special event, the City shall be notified 30 days in advance.*

- **Dublin Road South Shared-Use Path (City of Dublin)**

The project is the construction of a new shared-use path along the west side of Dublin Road between Rings Road and Waterford Drive. The construction of the shared-use path requires utilities to relocate as well as over 2,000 feet of stone wall reconstruction.

Schedule & Plan Status
The project has been planned to go to construction in June 2015, thereby closing a section of Dublin Road during the closure of the US 33 bridges over I-270. Since learning of the interchange maintenance of traffic plans, staff has increased efforts to move this project to construction in advance of ODOT's I-270/US 33 Interchange Improvement project. The construction plans are being finalized as property issues are resolved.

In order for this project to have the possibility of being constructed ahead of the US 33 bridges over I-270 closure of the I-270/US 33 Improvement project, the following must occur:

- Outstanding property acquisition with the remaining four (4) property owners must be resolved within the next three (3) weeks;
- Utilities must relocate in timely fashion in order to allow for construction to begin in March 2015 (winter storms and inclement weather could be a factor); and,
- The City will need to use incentivized construction bidding practices in order to maximize the probability of completing the project prior to June 8, 2015 (US 33 bridges over I-270 closure date) or with minimal overlap of the proposed closure of the US 33 bridges over I-270 as part of I-270/US 33 Interchange project.

Traffic Impacts
The project plans currently propose that only local traffic is maintained between Rings Road and Waterford Drive during the construction of this project. This, in effect, would close Dublin Road between Rings Road and Waterford Drive to through traffic, thereby reducing the ability of this roadway to provide a meaningful traffic alternative to the I-270/US 33 Interchange Improvement project if not completed before June 8, 2014. The closure of Dublin Road would overlap the proposed construction and possible closure of SR 161 and Riverside Drive intersection. However, it is the goal to have Dublin Road fully operational prior to the closure of US 33 bridges over I-270, thereby providing a meaningful alternative to the SR 161 and Riverside Drive Intersection Improvement and the closure of the US 33 bridges.

- **Hard Road & Sawmill Road Intersection (City of Dublin) and Hard Road Widening (City of Columbus)**

The project consists of capacity improvements at the Hard Road and Sawmill Road intersection as well as the widening of Hard Road east of the intersection. Each project is being developed by their respective sponsor, but will be bid by ODOT as a single project with two (2) parts.

Schedule & Plan Status
The proposed schedule per ODOT for the project is summarized below is for construction to begin May 25, 2015 and last through October 4, 2016. Right-of-way acquisition is nearing completion and the plans are being finalized.

Traffic Impacts
All traffic lanes are maintained on Sawmill Road and all traffic movements are maintained throughout the construction project, but in a reduced capacity on Hard Road. An eastbound left turn lane and the dedicated westbound right turn lane is eliminated during construction, therefore reducing the capacity of Hard Road. Generally, traffic will be maintained during construction with some lane restrictions on Hard Road.

This project is not near the I-270/US 33 interchange project and would not normally cause major traffic concerns for the City of Dublin. However, the queuing traffic related to the reduced capacity at the intersection of Hard Road and Sawmill Road during this construction project could impact the operation and performance of the Sawmill Road interchange, which in turn could impact operations on mainline I-270. When the US 33 bridges are closed over I-270, the Sawmill Road interchange becomes part of the detour for closed movements at the I-270/US 33 interchange and any impacts (i.e. queuing traffic) from the reconstruction of Hard Road and Sawmill Road will need to be closely monitored.

- **Riverside Drive Realignment (City of Dublin)**

The project is the relocation and improvement of Riverside Drive from I-270 to approximately Dale Drive. Because the project is on a new alignment east of existing Riverside Drive, the majority of the project can be constructed with minimal interruption to traffic. While maintenance of traffic plans have yet to be developed, it would be anticipated that short duration, intermittent traffic interruptions on existing Riverside Drive near the Tuller Road intersection would be required to complete the project.

Schedule & Plan Status
The project is anticipated to require one (1) construction season to be open to traffic with work outside the traffic lanes continuing into another construction season. Final design of the project started in June 2014 and Dublin staff is advancing the design so that construction can possibly begin as early as March 2015 (with the adjacent roundabout project). This project must be open to traffic in order for the proposed SR 161 and Riverside Drive Intersection roundabout to be fully functional. The design is developed to approximately 40% completion and as new information becomes available, construction durations will be re-evaluated.

- **SR 161 and Riverside Drive Intersection Improvement – Roundabout (City of Dublin)**

This project is the relocation of the SR 161 and Riverside Drive intersection and the complete reconstruction of the signalized intersection as a roundabout. The project requires four to ten feet of fill approximately 100 feet east of the existing intersection; includes private utility relocation, construction of AEP and DubLink duct bank, granite and other Bridge Street District finishes; and a new shared-use path connection south to Martin Road. This project is the most complex roundabout Dublin will have constructed, should this project be advanced. As a reminder, when the City affirmed the roundabout as the preferred solution to the intersection's needed capacity and safety enhancements, one of the key factors was the ability to avoid an entire SR 161 Scioto River bridge replacement, which many of the traditional intersection replacement alternatives evaluated would have required.

Schedule & Plan Status
Similar to the Riverside Drive Realignment, the SR 161 and Riverside Drive Intersection Improvement project is being advanced in order to allow construction to occur as early as March 2015. Design of the project started in June 2014 and the plans are currently developed to approximately 40%. The project is anticipated to require one (1) construction season to be open to traffic if a full closure is permitted while maintaining one (1) lane northbound and southbound on the bypass lane.

Traffic Impacts
The plans are being advanced from preliminary engineering through detailed design. At the time of this memorandum, and based upon the current level of plan completion, construction of the roundabout is anticipated to require a full closure of the SR 161 and Riverside Drive intersection for some period of time, likely one construction season (i.e. March through November). One (1) northbound and one southbound lane would be maintained on the bypass under the Bridge Street bridge over the Scioto River. Again, the consultant team and staff are continually evaluating construction durations and maintenance of traffic options as more design information develops.

Staff and the consultant team are advancing the construction documents in order to identify opportunities in construction sequencing that would:

- allow the project to maintain one (1) lane of traffic eastbound and westbound while opening the completed project to traffic in one (1) construction season;
- maintain safety for the traveling public and contractors; and,
- minimize cost implications.

Plans will need to progress further and be more detailed than 40% design – specifically, electrical and DubLink duct bank, utility locations and finishes need to finalized to confidently evaluate and offer a one (1) construction season solution that maintains one (1) lane and (1) lane westbound on SR 161 for a portion of the construction project. We anticipate the plans will be to the required level of completion to address such issues in early October of 2014.

We do not currently believe there are any good alternatives that would provide for a more continuous level of traffic maintenance on SR161 through the roundabout construction area that would not lengthen the duration of construction. Maintaining traffic on SR 161 will provide substantial service level and traffic capacity reductions. Therefore, efforts should be made to complete the project in a timely fashion to restore capacity of full operation as soon as possible.

DISCUSSION OF CUMULATIVE AND OVERLAPPING IMPACTS OF BSD AREA PROJECTS

I-270/33 Interchange Improvement project will have the greatest impact on those working and driving in and around Dublin between June 8, 2015 and approximately the end of October 2015 with the closure of the following movements:

- US 33 eastbound and westbound through traffic;
- US 33 westbound to I-270 southbound; and,
- I-270 southbound to US 33 eastbound.

The posted primary detour routes will be via Frantz Road, the I-270/Sawmill Rd. and I-270/Tuttle Crossing Boulevard interchanges.

The **Dublin Road South Shared-Use Path** project and the associated closure of Dublin Road between Rings Road and Waterford Drive could overlap the I-270/US 33 Interchange Improvement, Riverside Drive Realignment and SR 161 and Riverside Intersection Improvement projects. If the construction of the project is not advancing ahead of the US 33 bridge closure over I-270, then this project should be delayed to permit a meaningful alternative route to both the I-270/US 33 Interchange Improvement, Riverside Drive Realignment and the SR 161 and Riverside Drive Intersection Improvement. Again, staff is working diligently to deliver this project ahead of the interchange project, but advance delivery is primarily contingent upon property acquisition resolution. We will keep Council informed on the status of this matter.

As discussed above, staff is advancing the design of the **Riverside Drive Realignment** and **SR 161 and Riverside Intersection Improvement** projects so that they can be ready for construction as early as March 2015. At the time of this memorandum, and based upon the current level of plan completion, construction of the roundabout is anticipated to require a full closure of the SR 161 and Riverside Drive intersection for a period of time. One (1) northbound and one (1) southbound lane would be maintained on the bypass under the Bridge Street bridge over the Scioto River.

Most Affected Routes

A high level review of the impact to the Dublin transportation network of the detoured traffic resulting from all projects has been completed. The review assumes that all projects discussed advance as planned in 2015. The team is currently developing four (4) impact evaluation scenarios, but in all scenarios the review shows that that the following locations will experience the highest traffic volumes and be the most impacted by the detours and closures:

- Avery-Muirfield Drive between Perimeter Loop Rd. to US 33 Ramps;
- Perimeter Drive between Avery-Muirfield Drive to Emerald Parkway;
- Emerald Parkway between Dublin Road to Riverside Drive (the bridge over the Scioto River);
- Frantz Road between Tuttle Road and SR 161/Bridge Street;
- Post Road between SR 161 and Emerald Parkway;
- Dublin Road from SR 161/Bridge St. to Emerald Parkway; and,
- US 33/ SR 161 from I-270/US 33 interchange east to Post Road.

Identification of the impacted routes is the first step to developing a comprehensive traffic mitigation plan that identifies locations that will require modified and optimized signal timings, proposes increased route signage and informs the maintenance of traffic communication plan.

Given the emerging construction schedules for 2015 (driven often by the lengths of the construction season), several activities will overlap. Staff and the consultant team currently believe that the simultaneous construction of both the interchange and roundabout projects should not present any unusual problems and may, in fact, provide some benefit. It is anticipated that the closure of the US 33 bridges over I-270 will likely provide some reduction to the volume of traffic on SR 161 through Dublin, east of the interchange, thereby disrupting less traffic than may have otherwise occurred through the roundabout project location. Staff and the consultant team also currently believe that if the Dublin Road South Shared-Use Path project cannot be advanced ahead of the I-270/US 33 and the SR 161 and Riverside Drive Intersection Improvement, Dublin Road should not be closed to through traffic at the same time as the US 33 bridges over I-270. The planned completion of the Emerald Parkway Phase 8 should provide relief for those traveling to and through the City. Emerald Parkway will provide connectivity from Tuttle Crossing Boulevard to Sawmill Road.

Staff understands these overlaps and their cumulative impacts will likely provide even greater transportation and traffic impacts for the City, and is working to minimize the duration of the construction projects and proposed traffic detours and closures by:

- Working closely with ODOT to develop plan notes, incentivized maintenance of traffic sequences and detour routes for the I-270/US 33 Interchange Improvement that minimize impacts to the City and offers formalized avenues for traffic coordination throughout the project;
- Growing our internal capacity by engaging a Program Management Consultant (PMC) team led by Mandy K. Bishop, PE of GPD Group. Mandy is responsible for the day-to-day management and coordination of all public infrastructure projects from design through construction within the BSD area as well as the maintenance of traffic evaluation.

  - GPD Group retained Hill International, Inc., to provide construction scheduling services. Dan Weis serves as the team's master scheduler. Dan not only develops detailed project schedules to understand the coordination of projects for construction sequencing, but also so that the City fully understands project durations and therefore, the feasibility and timing of maintenance of traffic sequencing. He works to develop construction sequencing that minimizes construction durations and impactful maintenance of traffic phases. Understanding the construction sequencing is key to accurately evaluating maintenance of traffic scenarios.

- Advancing the Dale Drive-Tuller Ridge Connector into construction to provide a relief valve for traffic when the SR 161 and Riverside Drive intersection closes; and,

- Aggressively advancing the Dublin Road South project in order to attempt to construct the shared-use path prior to the anticipated closure of the US 33 bridges, should the project be advanced in 2015;
  - Success is contingent upon quick resolution to property acquisition and an overlap may still occur; and,
- Advancing the design of Riverside Drive Realignment and the SR 161 and Riverside Drive Intersection Improvement in order to identify construction sequencing and maintenance of traffic plan options that can reduce closure times, is safe and cost effective.
  - Based on 40% completion of design, staff currently believes that full closure presents the best opportunity for achieving a functional intersection within one (1) construction season;
  - Staff continues to explore options to provide a one (1) season construction solution that maintains one (1) lane eastbound and westbound in addition to one (1) lane northbound and southbound on the bypass; such a strategy cannot yet be confirmed, but further plan development will provide the answers. It is important to note that -- even if one lane of traffic in each direction can be maintained during most of the project construction period, the volume of traffic being accommodated though this intersection will represent a small portion of today's traffic volumes.
  - In all feasible maintenance of traffic scenarios for the SR 161 and Riverside Drive Intersection Improvement, some length of closure of eastbound and westbound traffic will be required to complete the center of the roundabout and in no case would left hand turning movements be maintained at the intersection. We will have a better understanding on the duration of this closure when plans are 60% complete in early October of this year
- Advancing a more detailed traffic analysis in order to more fully quantify delays and levels of service as well as offer optimized signal timing in the area impacted by construction.

NEXT STEPS

At Council's September 8, 2014 meeting, staff will present more detail and discussion of the schedule and construction sequencing drivers, emerging preferred strategies for construction and maintenance of traffic, the order of magnitude of the impacts of traffic due to the proposed

closures and/or lane reductions, and posted detour routes as well as timeframes for delivery of additional information as design advances.

In an effort to provide needed information to help make decisions regarding the advancement of these projects, staff and the PMC team will provide as much information as needed regarding the aggregated impacts of the projects and the timing of projects including closures and detours, and will:

- Develop more refined level of service and traffic impact information that is anticipated to be available in late **September 2014**;
- Advance construction plan development so that project and closure durations can better be defined within each project;
- Refine the preliminary schedule of BSD area projects to show project and closure durations in **early to mid-October 2014,** following the submittal of detailed design plans for the Riverside Drive Realignment and SR 161 and Riverside Drive Intersection Improvement; and
- Develop a comprehensive communication strategy to address the general public, as well as the specific needs of particular stakeholder groups.

RECOMMENDATION

Information only.

Bridge Street District Area Projects Planned for Construction in 2015

City of Dublin

GPD GROUP
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.

Hill International