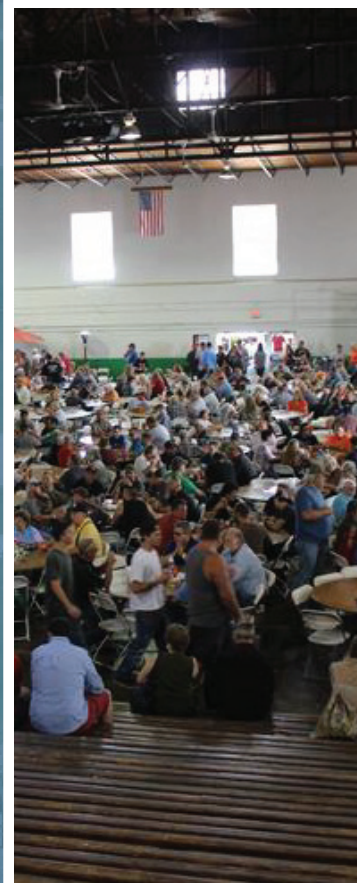




The Pickaway County Fairgrounds Master Plan

prepared for

Pickaway County Board of Commissioners

139 West Franklin Street, Circleville, Ohio 43113



prepared by

ms consultants, inc.

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ms consultants, partnered with the Environmental Design Group, is pleased to present this Master Plan for the Pickaway County Fairgrounds (Fairgrounds). The Fairgrounds are located at 415 Lancaster Pike on the south side of U.S. 22 at the intersection of Stoutsville Pike. The 60 acre site includes a coliseum, multipurpose building, grandstand, horse track, several animal buildings. The goal of the project is to formulate a cohesive and responsive master plan for the revitalization and growth of the Fairgrounds as a community resource. The County would like to extend the use of the fairgrounds beyond the annual fair and Extravaganza to local events such as meetings and weddings.

Existing Conditions

A field survey of the site was conducted on April 18 and May 9, 2016. An exhibit representing the field survey is shown in **Appendix A**. The Coliseum building is located along the frontage of Lancaster Pike. The Grange building is southeast of the Coliseum. Several 4H barns are located behind the Grange building with a parking area just to the east. A large open midway area is located to the south of the coliseum and the west of the barns. There is a steep hillside that separates the buildings from the horse track. Grandstands for the track are located on the north side of the track. Horse barns which are used year round are located at the northwest corner of the site. Additional stable areas are located to the south east of the horse track. RV camping areas are located to the east of the track. A wrangler arena is located to the southwest of the track.

The City of Circleville Utilities Department indicated that the water services and sewer laterals located on the property are old and should be replaced with any redevelopment. The same can be said of the storm sewer system. Stakeholders have indicated that areas of the property do not drain well. There is an existing water well on the southeast corner of the site for the stables. All electric, telephone, and lighting utilities are located above ground and connect to numerous poles across the site. There is a 10-inch gas main along Lancaster Pike.

Hargus Creek flows along the site's southern property line. The approximate location of the FEMA floodplain has been added to the existing conditions/field survey exhibit. Any buildings and utilities placed in the FEMA floodplain will need to be flood-proofed. No development should occur within the floodway.

A preliminary environmental assessment was conducted of the site and its immediate surrounding area. The results of the assessment are in **Appendix B**.

ms consultants conducted an assessment of the existing Coliseum and the Grange Building to develop preliminary recommendations for either re-purpose or removal of the existing structures. The complete assessment report is provided in **Appendix C**.

Due to the extensive list of repairs and the high costs associated, **ms consultants** recommends demolishing the Grange and Coliseum buildings. The cost of the necessary repairs to the Coliseum is very high and this would only serve to make it a more habitable conditioned space. There would be very little change to the overall function, even after spending in excess of 1.4 million dollars. We also considered historical significance of the structure in making our decision. From our discussions with various stakeholders it is clear that there is little historical or sentimental value

placed on the existing building. The final determining component is the fact that the existing bleachers are actually part of the structural integrity of the building. This effectively eliminates any remodeling or repurposing options without taking down the entire building.

The recommended Master Plan layout involves utilizing the space where the Grange building is currently located. In addition, the kitchen and meeting space functions within the Grange building are duplicated in the various proposed structures, making the Grange building obsolete.

Stakeholder Meeting Summary

ms consultants held stakeholder meetings with the Fair Board, the Junior Fair Board, the local 4H group, and the Horseman Organization. Preliminary site options were presented to them for their comment. These options are included in **Appendix D**. Key comments and concerns are summarized below.

Fair Board Meeting (April 25, 2016)

- Concerns were raised regarding the newly depicted entrance location in line with Nicholas Drive.
- The Board noted that the additional parking area indicated in the northwest corner would not be enough to serve everyone.
- Perhaps, the largest concern raised by the Board was the negative impact that would result from any loss of camper/campground spaces. They requested that a minimum of 200 camper spaces be kept.
- The Board was not in favor of a walking track around the main track.
- The Board was opposed to the placement of any facilities within the main track such as the 4H horse arena, barns or possible stormwater detention.
- The Board noted the Coliseum needed to be completely upgraded or torn down. A portion of the board suggested replacing the Coliseum with one large multi-purpose building ranging from 300- 350' long by 225' deep.
- Overall the Board requested one large building for fair events and another building for dinners/weddings.
- The Board primarily favored demolishing the Ankrom building.
- It was generally accepted as favorable to replace the two northeast tenants (owned by the Commissioners) and expand the midway area and parking along the roadway.
- The Board stated that the proposed parking area was very wet and not well drained.
- The Board was open to relocating or adjusting the spacing of the horsemen and 4H barns.
- Concerns were voiced about having the entrance off of Stoutsville Pike for Horsemen to access barn area on southeast side of the track.

4-H Meeting (May 2, 2016)

- It was agreed that the horses should be a part of the fair and not secluded anymore. It was suggested that the horse stables be moved closer to the arena for the conveyance of the horse show.
- Concerns were raised regarding safety for children and the need for a new Barn for the Junior Horse Fair.
- It was suggested to move the horse arena to an existing barn (Barn 1) but still far enough

from the midway so as not to spook the horses.

- It was discussed that the stalls could be upgraded to improve the cleaning situation.
- Additional concerns were raised regarding the general age of the buildings and the safety impact.
- Thoughts on the coliseum included the lack of convenience, inadequate size for showing livestock, not welcoming for events.
- It was noted that the Grange building is currently used for counselor training.
- 4-H stated they would need at least 4 rows of booths back to back for display area in the coliseum during fair week. This is used for 4-H Clubs, FFA and Girl Scout displays.
- 4-H was opposed to the placement of any facilities within the main track. However, they were open to temporary parking when the harness racing is not going on.
- 4-H stated that for any relocation of buildings, coordination of the animals will be key. Gates and fencing for the steers and hogs will have to be taken into consideration.
- Office space needs to be accessible for the cliental that come and people that ask questions. Currently, Jr. Fair Board has no office. It was stated that the Junior Fair Board offices needed to be located with all the other offices when the upgrades are done.
- It was noted that more parking was needed but not at the expense of green space behind the caretakers home.
- The majority was in favor of a large shared facility.
- It was suggested to move the midway to the proposed new parking area between the proposed new entrance and the Ankrom Building. This combined with the new fencing would create an approved aesthetic to help market the fair.
- The question was raised if it was possible to buy land at separate location to build a new Fairgrounds or buy enough land adjacent to the existing Fairgrounds to build the proposed changes.
- Get rid of the horse track since it is not utilized nowadays as it once was years ago.

Junior Fair Board and Horseman Organization Meeting (May 2, 2016)

Jr. Fair Board:

- It was suggested that general improvements to the wash racks would be a positive update.
- Concerns were raised regarding flooding in the sheep barn.
- It was noted that ventilation in the show arena should be considered in the master plan update.
- Adding a tack area and scales in the barns was suggested.
- A work area within the show area was suggested.
- Improved drainage in the camping area was requested.
- Suggestions for the Jr. Fair board office included updated HVAC, close proximity to the show arena and fair entrance, additional storage for trophies and awards.
- The following improvements were requested for the various animals:
 - Rabbits, Poultry, Cattle, Sheep & Goats: Better ventilation, additional water, larger SF, Electrical outlets, intercom, lighting and tack area.
 - Hogs: Clear span for increased open space, improved pens, electrical and ventilation upgrades.
 - Horses: New arena and improved stalls.

Horsemen Organization:

- It was noted that general maintenance and repairs to the current barn facilities was the primary concern for the group. The current facilities were characterized as undersized, inefficient and generally in poor condition.
- Site security was another major concern expressed by the Horsemen.
- General concerns with ingress/egress to the barns was discussed. A secondary entrance or a reworked or widened front gate would be beneficial.
- There was minimal concern/interest in the revised options related to the Coliseum, Grange building or 4-H barns.
- Concerns were raised regarding traffic congestion during fair week.
- Grading changes that effect stormwater runoff were also discussed. Ms indicated stomwater conveyance would be included in their Master Plan Documents.

Proposed Improvements

A final overall Site Utilization Plan is presented in **Appendix E**. The site plan adds parking to the site, places the arena and barns in close proximity near the front of the site, offers a multipurpose building near parking for offseason events, adds an amphitheater, and puts camping on the outskirts of the property.

Roadway and Traffic Improvements

The intent of the traffic impact study is to analyze the effects of the proposed driveway and site reconfiguration during a typical day of the year. This study is not intended to demonstrate traffic conditions or circulation patterns during the week of the Pickaway County Fair. The most significant change that affects day-to-day traffic is a new multi-purpose center that can be rented for special events such as meetings, parties, ceremonies, or community events.

The proposed redevelopment of the Pickaway Fairgrounds will result in a new main access drive to the site from the existing US 22/Nicholas Drive signalized intersection. The proposed drive would become the fourth leg at the signal. Capacity analyses show that the new driveway would not have a negative impact on the existing intersection. Recommended improvements at US 22/Nicholas Drive include restriping the north leg to have a left-through lane and a right turn lane, construction of a 100 foot long westbound left turn lane, and the construction of a 150 foot northbound left turn lane.

At the US 22/Stoutsville Pike intersection, no improvements are recommended. Even though the intersection is predicted to operate at LOS E in the Design Year, this time of delay is not uncommon or unexpected for a stopped approach. The stopped Stoutsville Road approach is only expected to have an increase of eight vehicles in the peak hour, resulting in a minimal delays increase.

Reference **Appendix F** for the complete Traffic Impact Study.

Utility Improvements

Based on the recommendation of the City of Circleville Public Utilities Department the existing water services, sewer laterals, and storm sewer system located on the property should be replaced

with any redevelopment. The existing well on the southeast corner of the site should be maintained to service the stables.

It is also recommended to bury all electric and telephone lines to not only improve site appearances, but also to create more usable space across the site.

Hargus Creek flows along the site's southern property line. The approximate location of the FEMA floodplain has been added to the existing conditions/field survey exhibit. Any buildings and utilities placed in the FEMA floodplain will need to be flood-proofed. An evacuation plan needs established for the RV/camping areas located in the floodplain on the southwest corner of the site. It is also recommended to make the camp sites "primitive" with no water, sewer, or electrical hook-ups. The only way to flood-proof these utilities would be to elevate them above the 100-year floodplain. If fill is to be brought into the floodplain, compensatory storage will need provided near the site to compensate for the flood storage lost. No development should occur within the floodway.

The proposed site utilization plan will require stormwater treatment. The plan proposes a net increase of 5.43 acres of impervious area from existing conditions. Ohio EPA has a stormwater criteria that redevelopments must treat 20 percent of the net increase in impervious area, or reduce the site's impervious area by 20 percent. Reducing the site's impervious area would not work for the plan we are currently proposing. The water quality volume of the site which is the amount of stormwater that will need to be treated is approximately 2.02 acre-feet.

The current plan is recommending siting stormwater treatment basins within the infield of the horse track. While some stakeholders expressed concerns about placing the stormwater detention basin within the track, it cannot be placed anywhere else on the fairgrounds property without significantly limiting another use.

If the location of ponds is a major concern, other options are available. Options such as pervious pavement in the parking lots or bioswales in the landscape areas. These treatment options will eliminate the need for basins while permitting the land use plan to proceed as currently shown. These options are generally more expensive and therefore not recommended if the pond locations are deemed acceptable.

Proposed Buildings and Facilities Plan

The multi-purpose building is to be located on the site as an iconic structure and new main entrance to the fair, as well, as various other functions throughout the year. Areas included in the building are as follows:

- Large open area on the second floor, level with the main fair grounds for multiple functions. Dividing partitions in the room so the space is appropriate for the functions. Handicap accessible restrooms on this level, as well as, on the lower level.
- A fully functioning kitchen located on the upper level to support the various functions.
- Lower level, at the same grade as the new parking. New handicap accessible entrance, Handicap accessible restrooms, offices for the fair board, 4H and Jr 4H.
- A grand stair and elevator. The stair can be part of silo with two story storefront glass to view the fairgrounds. The opposite side to have the fair history with past grand champions.

The multi-purpose building will be separated from the arena and animal barns by the Midway. The arena and animal barns are orientated in a circle with an outdoor show arena with bleachers in the center. The buildings will be separated by breezeways wide enough for equipment.

The hillside separating the buildings from the horse track will be taken advantage of for the creation of an amphitheater with a stage. Concessions and a picnic area is proposed between the amphitheater and the arena and horse barn.

In addition to the Site Utilization Plan in **Appendix E**, A number of detailed renderings of major site components have been included in **Appendix G**. These include the multi-purpose building, 4-H barns and breezeway and the amphitheater.

Phasing Plan

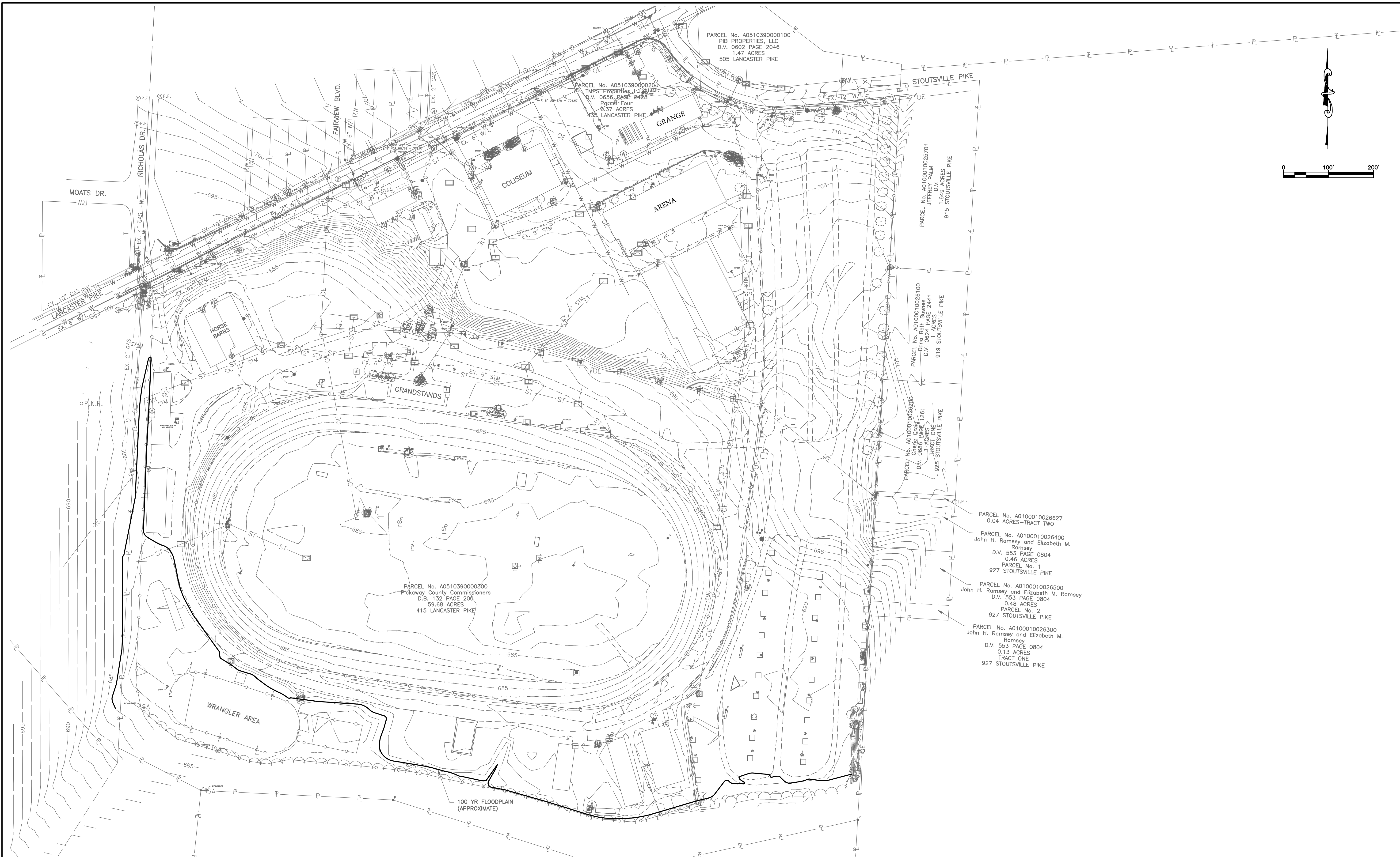
The current plan is to proceed with fairground improvements as funding becomes available. It is also important to consider the impact of construction activities with the annual fair and event schedule. To this end, the following represents a plan that will address the most pressing issues first, as well as, to provide ongoing facility service as required. For example: The coliseum can remain in use for fair events while all of the parking and drive construction is ongoing. Then after the fair, the multipurpose building can be constructed, followed by demolition of the coliseum.

- o Phase 1 – Parking Lot and Drive Improvements
- o Phase 3 - 4-H Barns and Arena area
- o Phase 2 – Multipurpose building and Midway
- o Phase 4 – Horse Barns to the South and Amphitheater

Attachments:

Appendix A – Existing Conditions Site Plan
Appendix B – Environmental Assessment
Appendix C – Building Assessments
Appendix D – Stakeholder Option Exhibits
Appendix E – Traffic Impact Study
Appendix F – Proposed Site Utilization Plan
Appendix G – Proposed Building Renderings

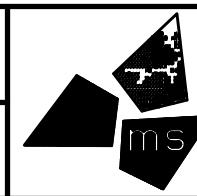
Appendix A – Existing Conditions Site Plan



NO.	REVISIONS	DATE	NO.	REVISIONS	DATE

PROJECT NUMBER: 64-12948-00		
DRAWN: JCD	CHECKED: BIV	DATE: 9/28/16

SCALE: (22x34) 1" = 100'
SCALE: (11x17) 1" = 200'



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PICKAWAY COUNTY FAIRGROUNDS
MASTER PLAN

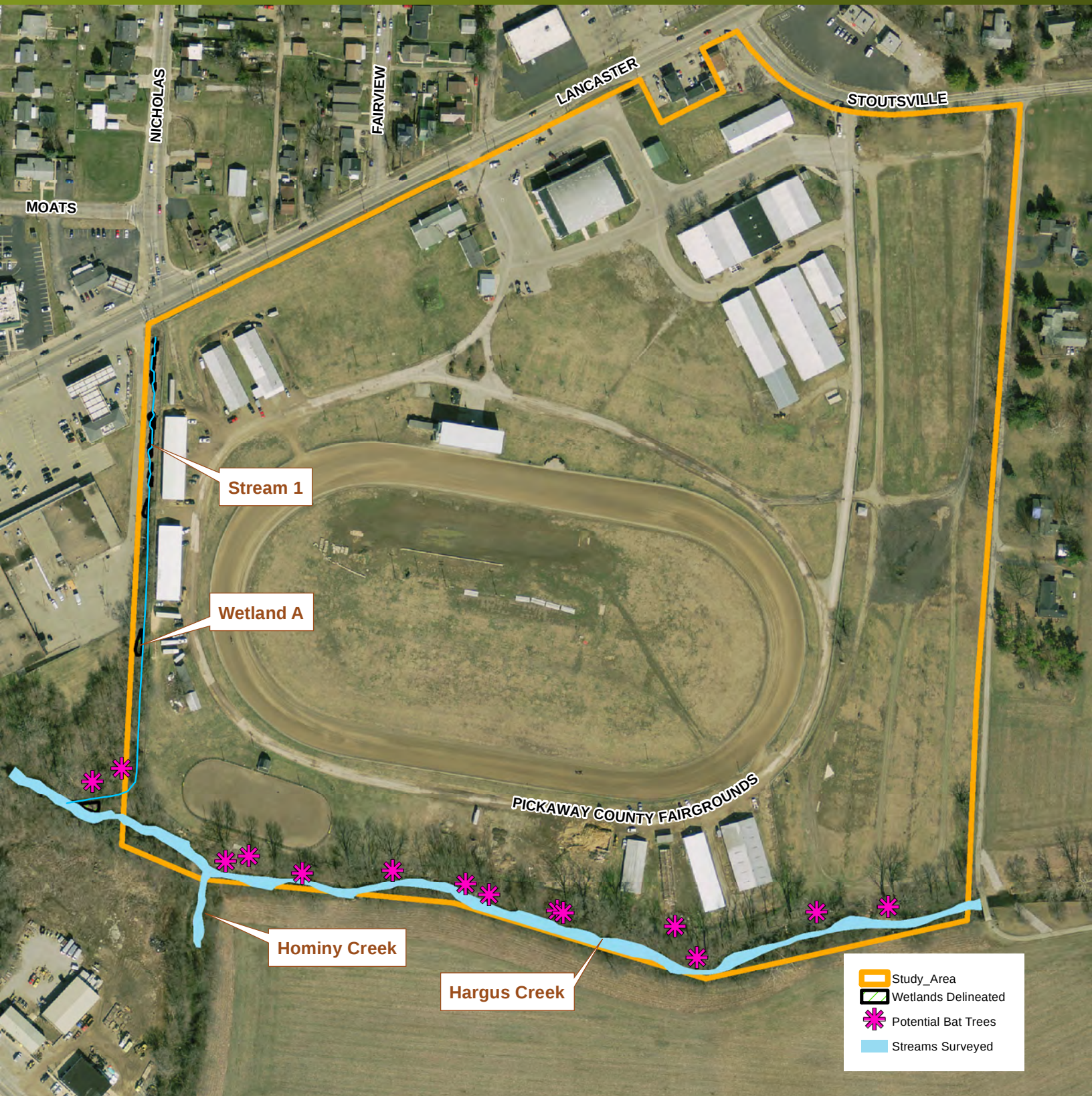
EXISTING SITE PLAN

DWG. NO.	X-#-#
SHEET	## OF ##

Appendix B – Environmental Assessment

Pickaway County Fairgrounds

Environmental "RedFlags"

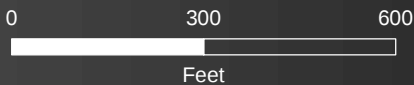
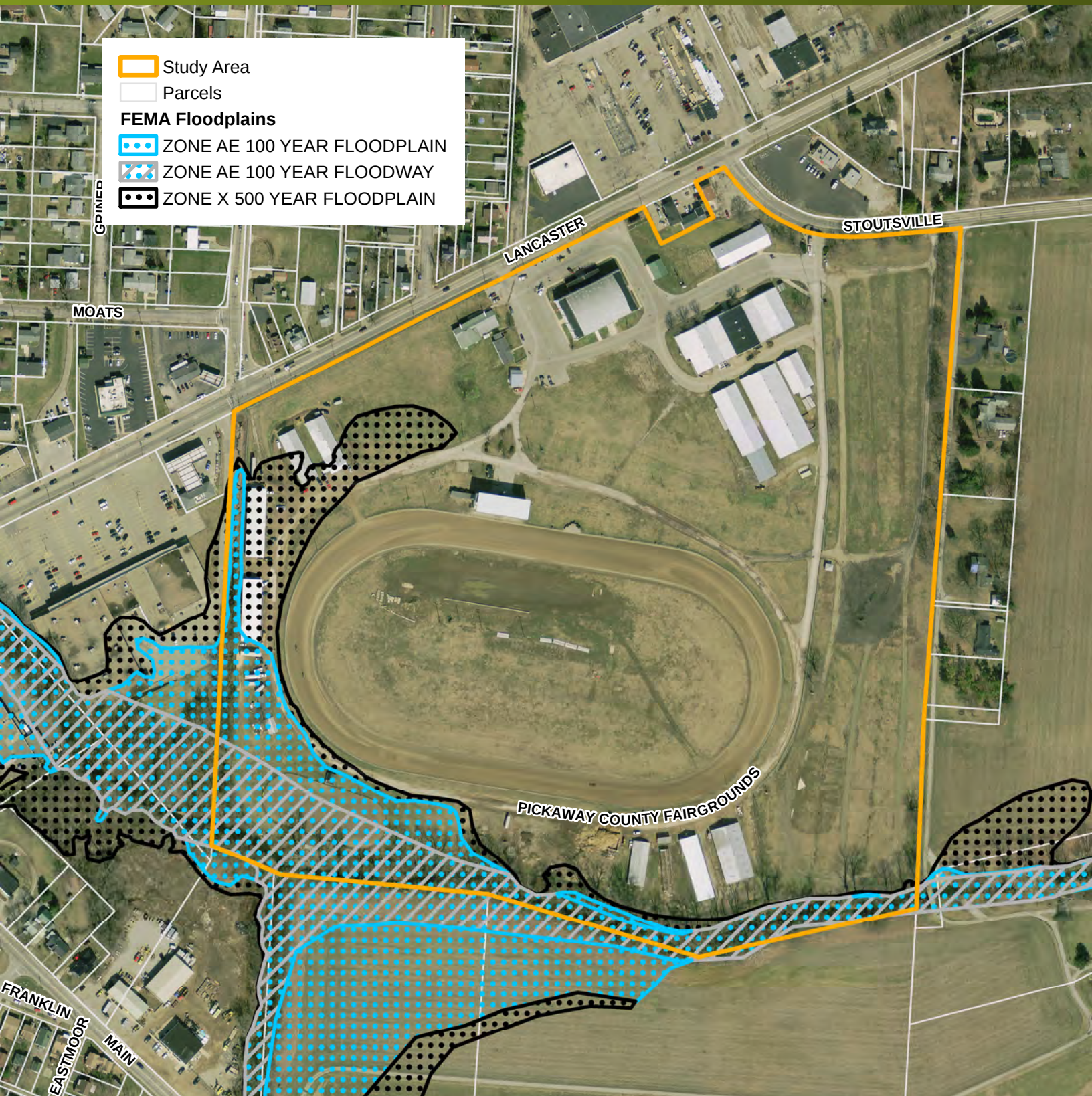


0 125 250
Feet

Surveyed Streams, Wetlands, and Bat Trees

Pickaway County Fairgrounds

Environmental "Red Flag" Review



Floodplains



Ohio Historic
Preservation Office

Legend

NR Listings

- Listed
- ⊙ National Historic Landmark
- ✕ Delisted

- ◆ NR Determinations of Eligibi
- ▲ Archaeological Sites
- Historic Structures
- Historic Bridges
- Historic Tax Credit Projects
- + OGS Cemeteries
- ★ OHC Sites
- Dams
- UTM Zone Split
- ▨ NR Boundaries
- ▨ Phase 1
- ▨ Phase 2
- ▨ Phase 3
- ▨ Historic Previously Surveyer

0 0.19 0.38 Miles

1: 15,000

Copyright/Disclaimer

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Datum: [Datum]

Projection: WGS_1984_Web_Mercator_Auxiliary_Sphere



Pickaway County Fairgrounds

Environmental "Red Flag" Review



- Study Area
- Hazardous/Regulated Materials
 - BUSTR Sites
 - RCRA Sites
 - CERCLIS Sites

Hazardous/Regulated Materials

ID	Database	Address	Name
1a	BUSTR	520 E Main St	United Dairy Farmers
2a	BUSTR	106 Lancaster Pike	Unknown
3a	BUSTR	175 Lancaster Pike	Kroger
4a	BUSTR	597 E Main St	Classic Carryout
5a	BUSTR	225 Lancaster Pike	Speedway
6a	BUSTR	224 Lancaster Pike	Good News Ventures
1b	RCRA	160 Lancaster Pike	Dollar General Store #6354
2b	RCRA	175 Lancaster Pike	Kroger
3b	RCRA	203 Lancaster Pike	Highlander Center
4b	RCRA	225 Lancaster Pike	Speedway #1402
5b	RCRA	279 Nicholas Dr	Circleville Nicolas Water Tower
6b	RCRA	548 Lancaster Pike	Brook Yates Center
1c	CERCLIS	608 E Main St	Hominy Creek

Appendix C – Building Assessment

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engineers, architects, planners

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Pickaway County Fairground

Coliseum and Grange Building Assessment

Project Name :

Pickaway County Fairgrounds
415 Lancaster Pike
Circleville, Ohio 43113

Project Number :

64-12948

Prepared By:

Chuck Busch, AIA

Date Submitted
6.29.2016

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1 Introduction

The purpose of this assessment is to identify the current condition of the Coliseum and the Grange Building serving The Pickaway County Fairgrounds and to provide a preliminary recommendation for either re-purpose or removal of the existing structures. These recommendations will be made with the overall vision of the Master Plan in mind.

The Coliseum building is a single story approximately 18,500 square foot facility, comprised of a large assembly space with bleacher seating at the west end, offices, kitchen, male and female restrooms, showers and storage areas. The Grange building is a single story masonry and pre-engineered metal building approximately 6500 square feet. The main space is open with a stage at the end. The building also contains a full kitchen and storage/staging area.

2 Existing Coliseum Building

The coliseum building is a single story non-sprinklered, slab on grade, approximately 18,500 square foot building. The main assembly space of approximately 16,500 square feet is open steel bow trusses with wood decking. The exterior wall construction is concrete masonry units, the front portion is CMU with brick veneer. The roofing is layers of membrane roofing over original metal roofing. Minor roof leaks were observed in the main assembly space

The existing bleacher system is integral to the structure of the building. The exterior walls are load bearing, with intermediate structural pilaster columns. The cast in place concrete bleachers are constructed with concrete beams, concrete columns, intermediate columns and concrete deck. The bleacher concrete girder beams are supported by a concrete beam on the exterior wall to the end of the bleachers with concrete columns. The continuous beams step and are supported with intermediate concrete columns. The attachment to the exterior wall is to a horizontal concrete beam with concrete masonry units above and below. Removing the bleachers from the assembly space would require the exterior wall to be removed and reconstructed. Refer to section 5 Recommendations for items in the building that need to be addressed.

The interior concrete block walls for the restrooms and showers are infill and non-load bearing. The restrooms and showers are functional, however, not ADA compliant. A number of the existing fixtures leak or should be replaced. All the utilities, plumbing and electrical are all surface mounted to the concrete block. The lighting is minimal but appears to be adequate for each space.

The entry vestibule walls are tile over concrete block, on sealed concrete floors. The office spaces are minimal and most file storage is within the office space. The kitchen with table seating appears to be in fair condition. The space is minimal for the assembly area it is supporting. The kitchen area contains a closet with the electrical disconnects, fuse box and breaker panels for the building. The kitchen equipment is in reasonable condition.

The coliseum mechanical systems are inadequate for the main assembly space. They appear to be added from the original building, and have been modified, however, the location and size of the mechanical system does not offer enough volume of air for the use of the space.

3 Existing 4-H Grange Building

The Grange building is a single story non-sprinklered, slab on grade approximately 6,500 square foot building. The main assembly space is open with a lay-in ceiling grid and tiles, fluorescent strip lighting. The end of the building contains an elevated stage, dressing room and men's restroom. The stage and restrooms are not ADA compliant.

The two other rooms are comprised of a large kitchen and a storage/ prep area. The kitchen is a health department approved commercial kitchen with two ovens, a 2'x8' exhaust hood, exhausting thru the roof, hand sinks, triple bowl sink and horizontal freezer.

The exterior wall construction is concrete masonry units, the entrance is an addition with split face block. The front portion is CMU with brick veneer. The roofing is pre-engineered metal roofing. A leak was observed in the main assembly space, along the fire separation wall. The women's restroom is near the kitchen and is also not ADA compliant.

There are a number of points of egress out of the building including an overhead sectional door near the stage. All doors are hollow metal with hollow metal frames, and the exterior door to access the mechanical room is damaged and should be replaced.

4 Photographs



The Coliseum building exterior
Side elevation with the structural pilasters



Exterior with front addition



The end wall indicating the concrete beam
supporting the bleachers



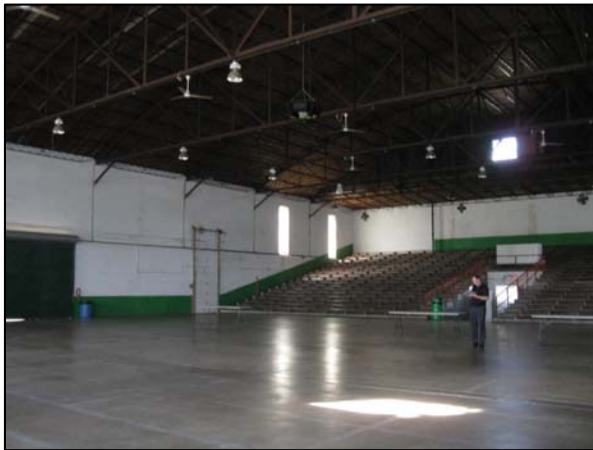
Coliseum Entrance



Coliseum Entrance



Exposed Structure



Existing Bleachers



Bleacher



Front Entrance vestibule



Front Entrance Vestibule



Kitchen Area



Existing Electric Disconnect and fuse box



The Grange building exterior



Exterior entrance



Side elevation



Exterior electrical disconnects



Grange Interior



Grange Stage



Men's Restroom



Dressing Room



Kitchen with hood



Ovens and Exhaust hood

5 Required Repairs

In order to keep the Coliseum building a number of repairs and some significant upgrades including a new HVAC systems throughout the facility. These include:

1. There are no apparent structural issues with the building. Some minor cracks in the CMU, but overall no major settlement issues observed.
2. Replace the current HVAC system with new duct work, furnace or split systems for the additional rooms. New air handler and chiller, with new piping which will be more efficient.
3. Replace the two 30 gallon domestic water heaters currently 12 years old. The water heaters are in good condition, but may want to replace with the plumbing improvements. The life expectancy of a gas fired water heater is 20 years, so it may make sense for replacement during the renovation.
4. Install new lay-in ceiling in the assembly space to help with the acoustical problems in the space, also to help locate the new ductwork supply and return ductwork. New light fixtures to give a consistent light level for multiple uses. Suggest LED fixtures that are dimmable for the space or place lights on separate controls.
5. Provide new upgraded electrical service with disconnects and panels
6. As previously stated the existing bleacher seating is integral to the structural system of the building. To remove the bleachers the end wall would need to be removed to

above the concrete beam supporting the bleachers and then replaced. The cost of this renovation may be beyond the cost of a new structure.

7. Remove the restrooms and showers under the bleachers. Perhaps these rooms become storage or another function. Add new ADA compliant restrooms to the new addition to the front of the building. Showers could be located in a separate restroom area away from the public restrooms.
8. The concrete masonry exterior and interior require significant maintenance. Remove all of the old paint, currently spalling off the walls. Possibly lead based paint peeling off. Tuck and point all the masonry. Flash, seal and paint the entire building interior and exterior. Possible brick veneer applied to the pilasters for aesthetics.
9. Replace the existing windows and glass block with insulated units.
10. New approximately 4,000 sf addition to the front of the building. After the existing 1,860 square feet kitchen and offices are removed, build new administrative offices, conference room and ADA compliant restrooms available to the public.
11. Concrete slab is in good condition with no major cracks or settlement issues. However with all the hard surfaces the acoustics in the space are an issue. Installing a new lay-in ceiling and acoustic wall panels will help the sound

The Grange Building currently functioning for the 4-H and other activities during the year. The space could be expanded to the north and west for future use either exterior seating or additional gathering space. An addition on the west end of the building for the storage room to help service the existing kitchen would open the space for additional usable space for dining or work room. The following is a list of recommendations to the building:

1. Repair/Replace the existing roof flashing at the fire wall to stop the leak. Examine the roof for any additional damage. No noticeable damaged noticed at the time of the observation.
2. Existing restrooms should be upgraded to comply with ADA. Neither the men's nor the women's complies currently. Any modifications or additions the occupant load will need to be verified for the number required fixtures. The existing layout of the men's and women's restrooms should be reviewed for placement of fixtures due to sight line issues.
3. Add access to the stage. Review the accessibility of the stage, currently there is not any means.
4. Replace the lay-in ceiling. The existing ceiling tiles should be replaced with new tiles using the existing ceiling grid. At the same time we recommend to paint the existing grid.
5. Replace damaged hollow metal doors. The door to access the mechanical equipment should be replaced. Unable to verify the existing condition of the frame, but recommend replacing the frame as well. With the amount of rust

suggest to replace with a fiberglass door and frame. Other doors should be repainted, especially the bottom sill of the door.

6. If future expansion toward the existing coliseum, consideration of the existing electrical service on the exterior wall will need further investigation. Expansion to the north with an addition or outdoor seating area could be accomplished.

The Grandstand was observed and found to be adequate, no signs of structural damage. There is need for a lot of maintenance to the existing facility. The structure is concrete pre-cast tees, structural steel and CMU. The cantilevered roof is structural steel and underside metal deck should be all sand blasted, primed and painted. The steel railing should also be stripped, primed and painted. There are areas of the structure where wood or fencing has been installed. The damaged sections should be replaced. There currently is not any accessible means to the grandstand seating. One of the stairs on either side could be converted into a ramp for access to the grandstand, and the seating area should be modified to introduce dedicated handicap seating, 2% of the seating should be dedicated, with a complain seat for each required handicap seat.

6 Opinion of Probable Cost

The estimated construction costs for the Coliseum based on the above recommendations are as follows:

1. New Brick Veneer over CMU 4,000 SF addition for offices Including 1600 SF for restrooms	\$350,000
2. 30 water closets and 9 lavatory plumbing fixtures required for 1500 occupants	\$120,000
3. <u>New</u> lay-in ceiling grid with acoustical tiles	\$ 90,000
4. New light fixtures and new electrical service for the building	\$195,000
5. New HVAC system for heating and moderate cooling	\$400,000
6. Replace two domestic water heaters	\$ 10,000
7. Sandblast exterior paint, tuck point and repaint walls	\$ 50,000

Total Construction Cost:	\$1,215,000
Fees and contingency at 20%	\$ 243,000
Estimated Project Cost:	\$1,458,000

7 Recommendation

Due to the extensive list of repairs and the high costs associated, ms consultants recommends demolishing both the Grange and Coliseum buildings as part of the eventual Master Plan phased construction.

All of the current Master Plan layouts involve utilizing the space where the Grange building is currently located. The kitchen and meeting space functions within the Grange building are duplicated in the various proposed structures, making the Grange building obsolete.

The cost of the necessary repairs to the Coliseum is very high and this would only serve to make it a more habitable conditioned space. There would be very little change to the overall function, even after spending in excess of 1.4 million dollars. We also considered historical significance of the structure in making our decision. From our discussions with various stakeholders it is clear that there is little historical or sentimental value placed on the existing building. The final determining component is the fact that the existing bleachers are actually part of the structural integrity of the building. This effectively eliminates any remodeling or repurposing options without taking down the entire building.

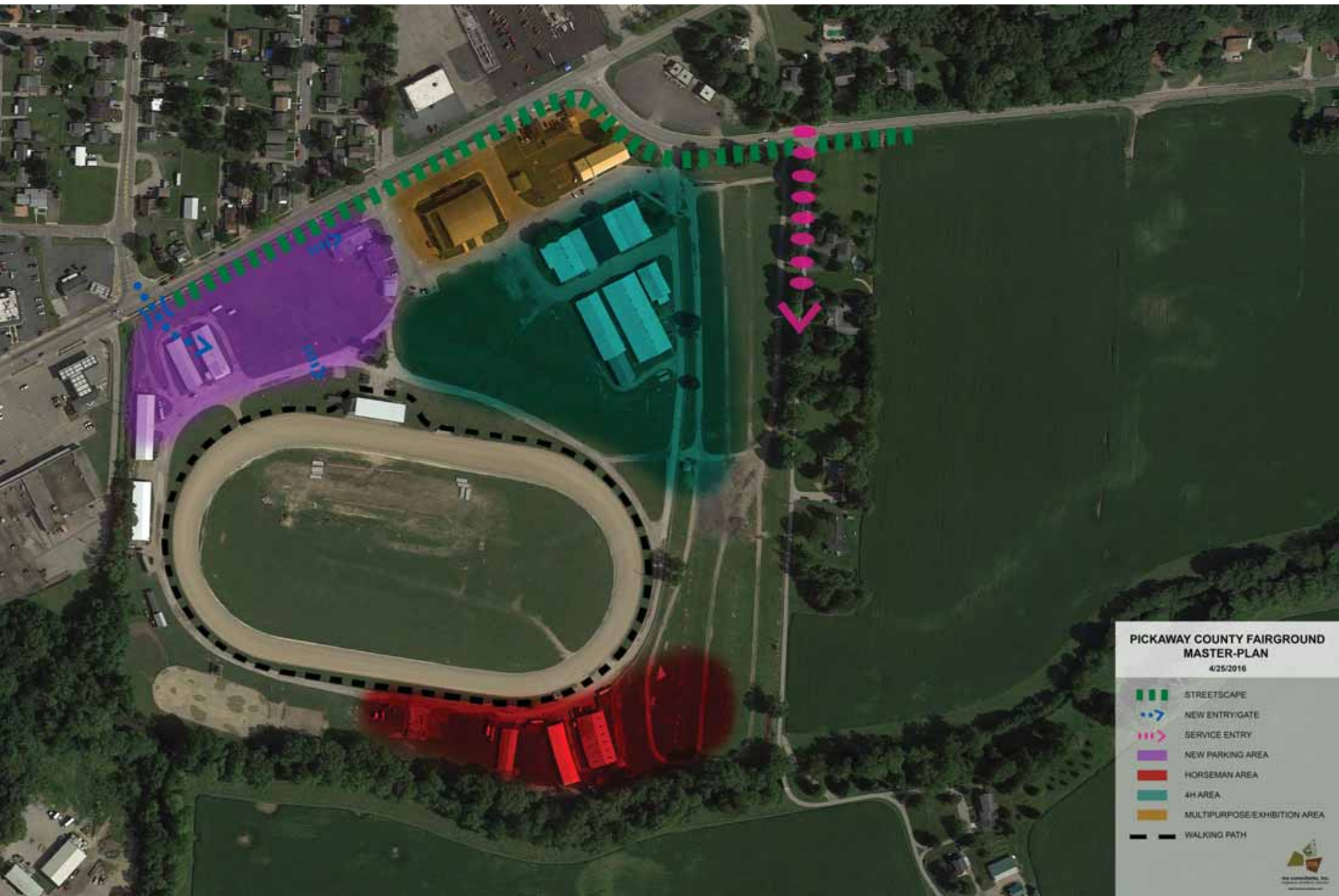
Should you have any questions or comments on this assessment report, please do not hesitate to contact Chuck Busch at 614-898-7100.

List of Distribution

Report Distributed To:

Jay Wippel, Pickaway County Commissioner
Harold Henson, Pickaway County Commissioner
Brian Stewart, Pickaway County Commissioner
Brad Lutz, Pickaway County Administrator

Appendix D – Stakeholder Option Exhibits



**PICKAWAY COUNTY FAIRGROUND
MASTER-PLAN**
4/25/2016

- STREETSCAPE
- NEW ENTRY/GATE
- SERVICE ENTRY
- NEW PARKING AREA
- HORSEMAN AREA
- 4H AREA
- MULTIPURPOSE/EXHIBITION AREA
- WALKING PATH



Appendix E – Traffic Impact Study

Pickaway County Fairgrounds Redevelopment

Traffic Impact Study
Circleville, Ohio

August 15, 2016

Pickaway County Fairgrounds Redevelopment

Traffic Impact Study Circleville, Ohio

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Appendices

Appendix A: Traffic Count Data

Appendix B: Synchro Reports

Appendix C: Turn Lane Warrants and Sizing

Pickaway County Fairgrounds Redevelopment

Traffic Impact Study Circleville, Ohio

INTRODUCTION

This traffic impact study is for the redevelopment of the Pickaway County Fairgrounds. **Figure 1** shows the site location map. The existing driveway that accesses US 22 (Lancaster Pike) will be moved from its current unsignalized location to become the fourth leg at the Nicholas Drive signal to the west. It is anticipated that the site reconfiguration will occur in 2018. Thus, this study will analyze the Opening Year of 2018 and a Design Year of 2038.

The intent of this traffic impact study is to analyze the effects of the proposed driveway and site reconfiguration during a typical day of the year. This study is not intended to demonstrate traffic conditions or circulation patterns during the week of the Pickaway County Fair. The most significant change that affects day-to-day traffic is a new multi-purpose center that can be rented for special events such as meetings, parties, ceremonies, or community events.

STUDY AREA

US 22 (Lancaster Pike) is an east-west minor arterial. It connects Circleville to Washington Court House to the west and Lancaster to the east. Within the study area, US 22 is a 2-lane facility with a posted speed limit of 35 miles per hour.

Nicholas Drive is a north-south minor arterial along the east side of Circleville. It connects several residential neighborhoods, Circleville High School, and terminates to the north at SR 188. It is a 2-lane roadway with a posted speed limit of 35 miles per hour.

Stoutsville Pike (CR 40) is minor collector county route that extends east to Stoutsville. It is a two-lane roadway with a posted speed limit of 35 miles per hour.

The intersection of US 22 and Nicholas Drive is a signalized intersection. The eastbound approach has a left turn lane and a through lane. The southbound approach has a left turn lane and a right turn lane. The westbound approach has a shared through-right turn lane. The signal is a three-phase operation, with eastbound protected-permitted left turns (with a southbound right turn overlap during the protected eastbound left turn phase). The southbound left turns are also currently protected since there is no opposing traffic.

The intersection of US 22 and Stoutsville Pike is an unsignalized intersection with the northbound and southbound approaches stopping for the eastbound-westbound US 22 approaches. The southbound approach is a private driveway for a Sutherland's store and access to Apple Ridge Apartments complex. The northbound approach has a left turn lane and a shared through-right turn lane. The eastbound approach has a shared left-through lane and a right turn lane. The southbound and westbound approaches only have one lane each.



FIGURE 1: STUDY AREA MAP
Pickaway Count Fairgrounds Redevelopment

Pickaway County Fairgrounds Redevelopment

Traffic Impact Study Circleville, Ohio

BACKGROUND TRAFFIC

Traffic counts were conducted at the two study intersections in July 2016. Weekday turning movement counts were taken from 7:00-9:00 AM and 3:30-5:30 PM. A copy of the count data can be found in **Appendix A**. Based on the count data, the AM peak one-hour period for the study area was determined to be 7:45-8:45 AM, while the PM peak one-hour period was determined to be 4:15-5:15 PM.

The 2016 peak hour count data was adjusted to Opening Year (2018) and Design Year (2038) levels by application of a growth rate. A linear annual growth rate of 2.0% was derived, based on historic count data on US 22 from the past decade. The historic count data was obtained from the Ohio Department of Transportation website.

PROPOSED SITE IMPROVEMENTS

Figure 2 shows the proposed site layout for the new Pickaway Fairgrounds entrance at Nicholas Drive. The new site access point will allow signalized access to the Pickaway Fairgrounds. It will be a full-access driveway.

One of the key elements of the fairgrounds redevelopment is the new Multi-Purpose Building. This building will be more attractive for outside groups to rent for special occasion, such as organization meetings, parties, or community events. These types of events are uncommon at the current fairgrounds coliseum/event center.

Trips were generated for a typical weekday peak hour during a small event at the fairgrounds. The *ITE Trip Generation Manual* does not have an appropriate land use for this circumstance. To make a conservative estimate, it has been assumed that an event would draw 100 vehicles to the site and the event starts and ends within the commuter peak hour. Thus, there will be 200 trips to the site in the peak hour - 100 entering and 100 exiting. This trip generation will be assumed to be the same for both peak hours.

Trip distribution was determined by population and assumptions about where local organizations would most likely travel from. The trip distribution is summarized in **Table 1**.

Table 1: Trip Distribution

	Trip Distribution
To/from west on US 22	70%
To/from east on US 22	12%
To/from east on Stoutsville Pike	8%
To/from north on Nicholas Drive	10%

The site trips were assigned to the No-Build road network according to the distribution in Table 3. Then, the site-related trips were added to the No-Build volumes to obtain the total peak hour volumes for the Design Year, which are shown in **Figure 3**.

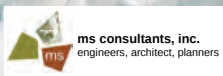
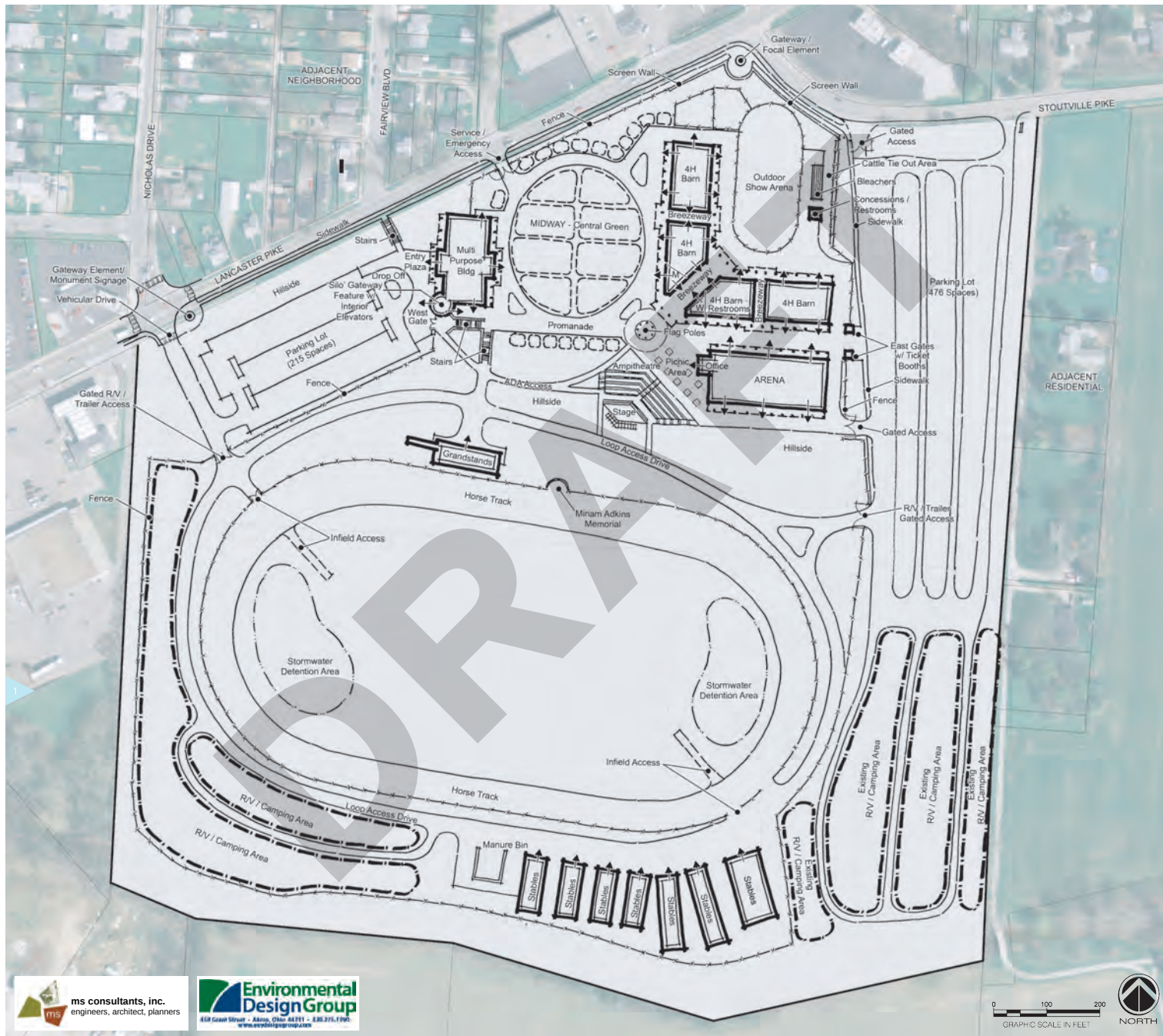


FIGURE 2: DRAFT SITE PLAN
Pickaway County Fairgrounds Redevelopment

Pickaway County Fairgrounds Redevelopment

Traffic Impact Study Circleville, Ohio

CAPACITY ANALYSIS

Capacity analyses were performed for the two study area intersections – the US 22/Nicholas Drive intersection and US 22/Stoutsville Pike intersection. Synchro 8 was used to conduct the traffic analyses for both the No-Build and Build conditions. The results of the capacity analyses for the Opening Year are shown in **Table 2**. The results of the capacity analyses for the Design Year are shown in **Table 3**. Copies of the Synchro result reports can be found in **Appendix B**. For an urbanized/suburbanized area such as this, a level-of-service (LOS) of D or better is considered to be acceptable operations.

Table 2: Opening Year (2018) Level-of-Service

Delay in seconds/vehicle

	No-Build		Build	
	AM Peak	PM Peak	AM Peak	PM Peak
US 22/Nicholas Drive	A 8.3	B 10.3	B 19.6	C 21.8
US 22/Stoutsville Pike*	B 14.4	C 19.6	C 15.0	C 20.8

*unsignalized intersection – delays shown are for worst stopped approach

Table 3: Design Year (2038) Level-of-Service

Delay in seconds/vehicle

	No-Build		Build	
	AM Peak	PM Peak	AM Peak	PM Peak
US 22/Nicholas Drive	A 9.9	B 15.6	C 23.7	C 33.0
US 22/Stoutsville Pike*	C 20.5	E 41.0	C 21.9	E 46.4

*unsignalized intersection – delays shown are for worst stopped approach

The Synchro analyses shows that the proposed addition of the fourth leg to the US 22/Nicholas Drive signal will not degrade the intersection. For the Build condition analyses, the southbound approach was converted to a shared left/through lane and a right turn lane. The southbound right turn movement is the highest movement for that approach in both peak hours. Therefore, it is recommended to keep a dedicated right turn lane and convert the left turn lane into a shared through/left lane. The US 22/Nicholas Drive intersection is predicted to operate at LOS C or better in all hours in the Build condition with the adjusted southbound lane configuration. The proposed drive additional will minimally increase delays over the No-Build condition. Thus, no improvements are needed to maintain acceptable LOS.

The proposed site traffic that travels through the US 22/Stoutsville Pike intersection increases the delay by five seconds (LOS E in No-Build and Build conditions). The LOS E is worse than the recommended standards, however for an unsignalized approach, this is common. The LOS E movement is only for the

Pickaway County Fairgrounds Redevelopment

Traffic Impact Study Circleville, Ohio

northbound approach. The site traffic only contributes 8 additional northbound vehicles in the peak hours. Also, the Opening Year (2018) LOS is better than acceptable.

TURN LANE ANALYSIS

Left turn lane warrant analysis was conducted for the westbound left turn on US 22 at Stoutsville Pike. This turn lane warrant was conducted as per the Ohio Department of Transportation (ODOT) Access Management Manual. The analysis show that a westbound left turn is not warranted at Stoutsville Pike. A copy of the warrant graph can be found in **Appendix C**.

Turn lane sizing calculations were performed according to the procedures identified in the ODOT Location & Design (L&D) Manual, Section 400. The turning movements where traffic volumes are projected to increase in the Build condition were evaluated to determine if any improvements are needed due to the site traffic. The turn lane sizing calculations are shown in **Table 4**. Copies of all the turn lane sizing calculations can be found in Appendix C.

Table 4: Turn Lane Sizing Calculations

		Existing Length	No-Build		Build		Recommendation
			L&D	No-Block	L&D	No-Block	
US 22/ Nicholas Drive	EBLT	200'	375'	650'	375'	700'	Existing to remain
	WBLT	N/A	N/A	N/A	100'	600'	100'
	NBLT	N/A	N/A	N/A	150'	100'	150'
	SBLT	200'	200'	375'	N/A	N/A	Existing to remain, restriped as thru-left
	SBRT	N/A	N/A	N/A	375'	200'	Existing to remain, right turn only
US 22/ Stoutsville Pike	EBRT	225'	250'	N/A	250'	N/A	Existing to remain
	NBLT	200'	200'	N/A	200'	N/A	Existing to remain

At the US 22/Nicholas Drive intersection, the L&D calculated length for eastbound left turn lane is 175' longer than the existing condition in the No-Build and Build conditions. However, no improvements are recommended because a two-way left turn lane is provided west of the turn lane, therefore any extended queues could use that lane.

CONCLUSION & RECOMMENDATIONS

The proposed redevelopment of the Pickaway Fairgrounds will result in a new main access drive to the site from the existing US 22/Nicholas Drive signalized intersection. The proposed drive would become the

Pickaway County Fairgrounds Redevelopment

Traffic Impact Study Circleville, Ohio

fourth leg at the signal. Capacity analyses show that the new driveway would not have a negative impact on the existing intersection. At the US 22/Stoutsville Pike intersection, no improvements are recommended. Even though the intersection is predicted to operate at LOS E in the Design Year, this time of delay is not uncommon or unexpected for a stopped approach. The stopped Stoutsville Road approach is only expected to have an increase of eight vehicles in the peak hour, resulting in a minimal delays increase.

Summary of Recommendations

- US 22/Nicholas Drive
 - o Restripe north leg to have left-through lane and right turn lane
 - o Construct 100' westbound left turn lane
 - o Construct 150' northbound left turn lane
- US 22/Stoutsville Pike: No improvements recommended

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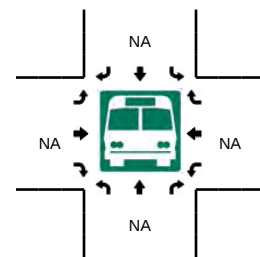
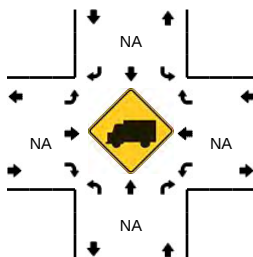
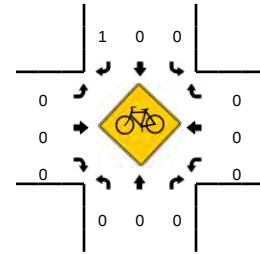
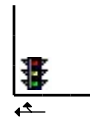
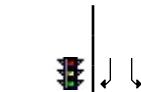
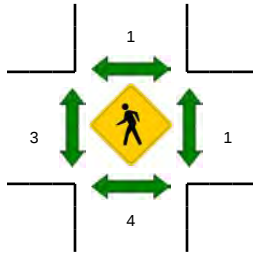
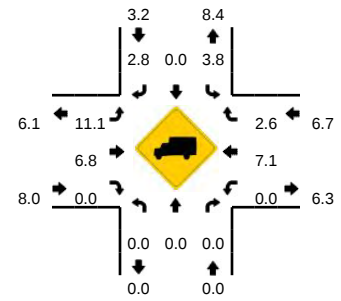
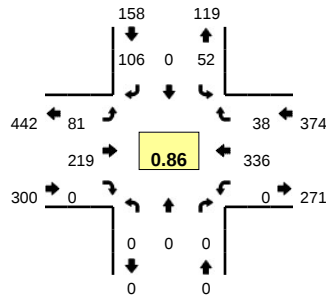
Appendix A

Traffic Count Data

LOCATION: Nicholas Dr -- Lancaster Pike
CITY/STATE: Circleville, OH

QC JOB #: 13858301
DATE: Tue, Jul 19 2016

Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



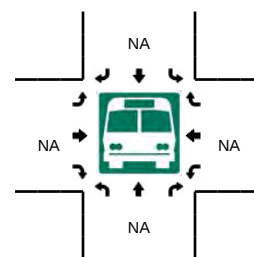
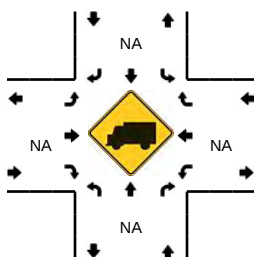
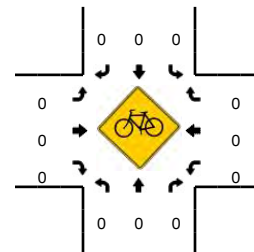
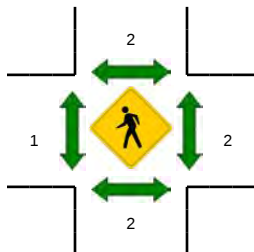
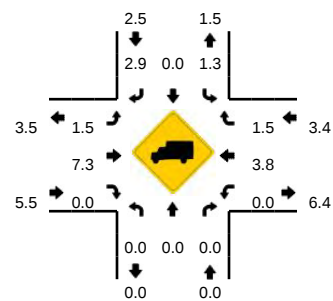
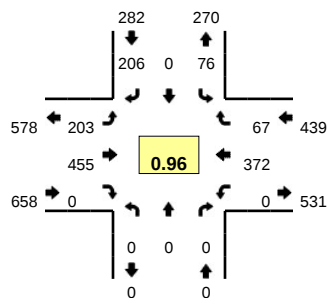
15-Min Count Period Beginning At	Nicholas Dr (Northbound)				Nicholas Dr (Southbound)				Lancaster Pike (Eastbound)				Lancaster Pike (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	14	0	18	0	20	53	0	0	0	74	7	0	186	
7:15 AM	0	0	0	0	14	0	18	0	14	40	0	0	0	92	10	0	188	
7:30 AM	0	0	0	0	10	0	33	0	20	59	0	0	0	83	12	0	217	
7:45 AM	0	0	0	0	14	0	37	0	27	67	0	0	0	87	9	0	241	832
8:00 AM	0	0	0	0	9	0	12	0	20	55	0	0	0	61	9	0	166	812
8:15 AM	0	0	0	0	8	0	19	0	24	53	0	0	0	58	10	0	172	796
8:30 AM	0	0	0	0	3	0	23	0	27	68	0	0	0	91	5	0	217	796
8:45 AM	0	0	0	0	12	0	34	0	29	77	0	0	0	75	12	0	239	794
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	56	0	148	0	108	268	0	0	0	348	36	0	964	
Heavy Trucks	0	0	0	0	8	0	4	0	12	28	0	0	0	28	4	0	84	
Pedestrians	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	8	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: Nicholas Dr -- Lancaster Pike
CITY/STATE: Circleville, OH

QC JOB #: 13858304
DATE: Tue, Jul 19 2016

Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



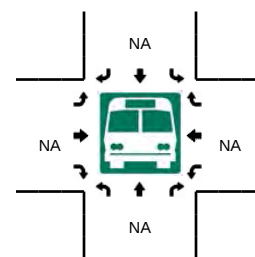
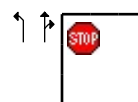
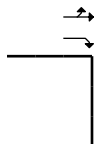
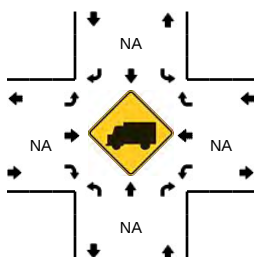
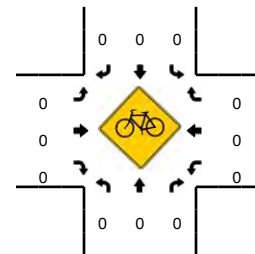
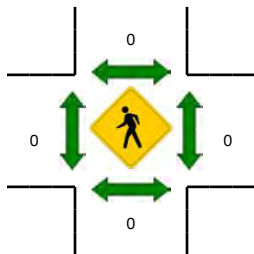
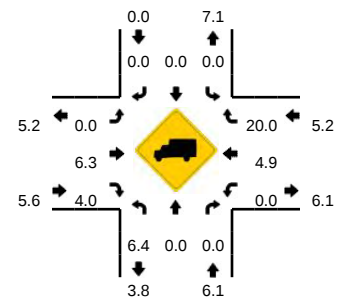
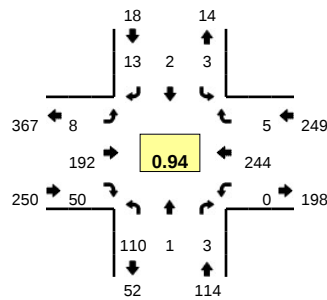
15-Min Count Period Beginning At	Nicholas Dr (Northbound)				Nicholas Dr (Southbound)				Lancaster Pike (Eastbound)				Lancaster Pike (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:30 PM	0	0	0	0	10	0	39	0	34	91	0	0	0	92	17	0	283	
3:45 PM	0	0	0	0	18	0	42	0	56	103	0	0	0	90	6	0	315	
4:00 PM	0	0	0	0	16	0	47	0	52	115	0	0	0	73	14	0	317	
4:15 PM	0	0	0	0	13	0	50	0	55	134	0	0	0	83	16	0	351	1266
4:30 PM	0	0	0	0	25	0	50	0	44	95	0	0	0	95	12	0	321	1304
4:45 PM	0	0	0	0	22	0	55	0	55	98	0	0	0	99	19	0	348	1337
5:00 PM	0	0	0	0	16	0	51	0	49	128	0	0	0	95	20	0	359	1379
5:15 PM	0	0	0	0	20	0	51	0	57	123	0	0	0	87	13	0	351	1379
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	64	0	204	0	196	512	0	0	0	380	80	0	1436	
Heavy Trucks	0	0	0	0	0	0	0	0	4	32	0	0	0	12	0	0	48	
Pedestrians	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	8	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: Stoutsville Pike -- Lancaster Pike
CITY/STATE: Circleville, OH

QC JOB #: 13858303
DATE: Tue, Jul 19 2016

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Peak 15-Min: 7:30 AM -- 7:45 AM

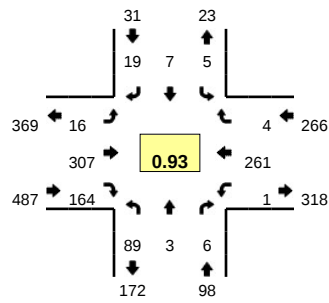


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7:15 AM	28	1	2	0	0	0	2	0	1	45	5	0	0	66	2	0	152	
7:30 AM	26	0	0	0	2	1	3	0	2	49	14	0	0	68	3	0	168	
7:45 AM	30	0	0	0	1	0	5	0	3	58	12	0	0	56	0	0	165	631
8:00 AM	10	1	0	0	0	0	2	0	0	44	13	0	1	47	1	0	119	604
8:15 AM	16	1	0	0	0	0	2	0	1	42	7	0	1	42	0	0	112	564
8:30 AM	31	2	0	0	1	0	3	0	3	52	7	0	0	57	2	0	158	554
8:45 AM	32	0	1	0	0	0	1	0	2	53	22	0	0	44	1	0	156	545
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	104	0	0	0	8	4	12	0	8	196	56	0	0	272	12	0	672	
Heavy Trucks	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

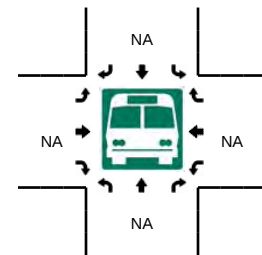
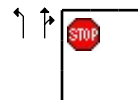
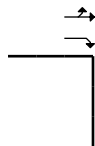
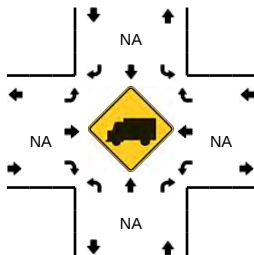
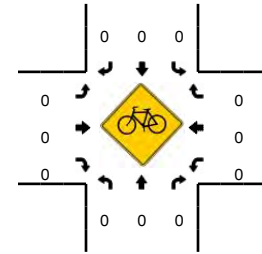
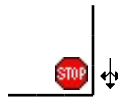
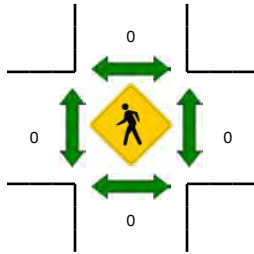
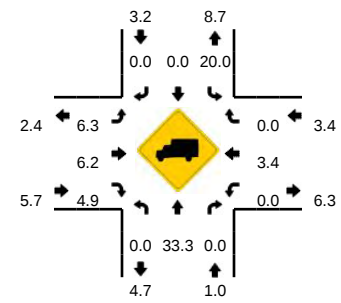
Comments:

LOCATION: Stoutsville Pike -- Lancaster Pike
CITY/STATE: Circleville, OH

QC JOB #: 13858305
DATE: Tue, Jul 19 2016



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM



15-Min Count Period Beginning At	Stoutsville Pike (Northbound)				Stoutsville Pike (Southbound)				Lancaster Pike (Eastbound)				Lancaster Pike (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:30 PM	37	1	0	0	3	0	5	0	5	68	21	0	0	61	1	0	202	
3:45 PM	20	0	1	0	2	0	8	0	4	73	36	0	0	57	2	0	203	
4:00 PM	22	2	1	0	2	1	2	0	5	79	35	0	1	61	2	0	213	
4:15 PM	24	1	2	0	1	0	2	0	4	88	38	0	1	56	2	0	219	837
4:30 PM	16	0	0	0	1	3	7	0	3	65	41	0	1	63	0	0	200	835
4:45 PM	31	1	1	0	2	1	4	0	6	71	36	0	0	59	1	0	213	845
5:00 PM	24	0	1	0	1	1	4	0	3	90	39	0	0	74	1	0	238	870
5:15 PM	18	2	4	0	1	2	4	0	4	81	48	0	0	65	2	0	231	882

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	96	0	4	0	4	4	16	0	12	360	156	0	0	296	4	0	952
Heavy Trucks	0	0	0	0	0	0	0	0	0	24	0	0	0	12	0	0	36
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Railroad																	
Stopped Buses																	

Comments:

Appendix B

Synchro Reports

HCM 2010 Signalized Intersection Summary

3: US 22 & Nicholas Drive

No-Build 2018 AM Peak
8/4/2016

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	84	228	349	40	54	110
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	0	1	1
Cap, veh/h	517	1105	620	70	196	283
Arrive On Green	0.07	0.59	0.38	0.38	0.11	0.11
Sat Flow, veh/h	1774	1863	1643	186	1774	1583
Grp Volume(v), veh/h	91	248	0	422	59	120
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1830	1774	1583
Q Serve(g_s), s	0.9	2.1	0.0	6.3	1.0	2.3
Cycle Q Clear(g_c), s	0.9	2.1	0.0	6.3	1.0	2.3
Prop In Lane	1.00			0.10	1.00	1.00
Lane Grp Cap(c), veh/h	517	1105	0	690	196	283
V/C Ratio(X)	0.18	0.22	0.00	0.61	0.30	0.42
Avail Cap(c_a), veh/h	922	3144	0	2276	683	717
HCM Platoon Ratio	0.00	0.00	0.00	0.00	0.00	0.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.5	3.2	0.0	8.5	13.8	12.3
Incr Delay (d2), s/veh	0.2	0.1	0.0	0.9	0.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.2	0.4	0.0	2.0	0.4	0.1
Lane Grp Delay (d), s/veh	5.7	3.3	0.0	9.4	14.7	13.3
Lane Grp LOS	A	A		A	B	B
Approach Vol, veh/h		339	422		179	
Approach Delay, s/veh		4.0	9.4		13.8	
Approach LOS		A	A		B	
Timer						
Assigned Phs	7	4	8			
Phs Duration (G+Y+Rc), s	7.3	25.0	17.7			
Change Period (Y+Rc), s	5.0	5.0	5.0			
Max Green Setting (Gmax), s	10.0	57.0	42.0			
Max Q Clear Time (g_c+l1), s	2.9	4.1	8.3			
Green Ext Time (p_c), s	0.1	4.6	4.4			
Intersection Summary						
HCM 2010 Ctrl Delay			8.3			
HCM 2010 LOS			A			
Notes						

Intersection												
Intersection Delay, s/veh	3											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	8	200	52	0	254	5	114	1	3	3	2	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0		190	0		0	150		0	0		0
Median Width		0			0			12			12	
Grade, %		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	217	57	0	276	5	124	1	3	3	2	15
Number of Lanes	0	1	1	0	1	0	1	1	0	0	1	0

Major/Minor	Major 1			Major 2			Minor 1			Minor 2		
Conflicting Flow All	282	0	0	217	0	0	523	517	217	516	514	279
Stage 1	-	-	-	-	-	-	235	235	-	279	279	-
Stage 2	-	-	-	-	-	-	288	282	-	237	235	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1280	-	-	1353	-	-	465	462	823	470	464	760
Stage 1	-	-	-	-	-	-	768	710	-	728	680	-
Stage 2	-	-	-	-	-	-	720	678	-	766	710	-
Time blocked-Platoon, %	0	-	-	0	-	-	0	0	0	0	0	0
Mov Capacity-1 Maneuver	1280	-	-	1353	-	-	451	458	823	464	460	760
Mov Capacity-2 Maneuver	-	-	-	-	-	-	451	458	-	464	460	-
Stage 1	-	-	-	-	-	-	762	704	-	722	680	-
Stage 2	-	-	-	-	-	-	703	678	-	756	704	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	14.4	10.7
HCM LOS	-	-	B	B

Minor Lane / Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Cap, veh/h	451	466	1280	-	-	1353	-	-	650
HCM Control Delay, s	14.8	13.6	7.832	0	-	0	-	-	10.7
HCM Lane V/C Ratio	0.18	0.10	0.01	-	-	-	-	-	0.03
HCM Lane LOS	B	B	A	A	-	A	-	-	B
HCM 95th-tile Q, veh	0.7	0.3	0.0	-	-	0.0	-	-	0.1

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 Signalized Intersection Summary

3: US 22 & Nicholas Drive

No-Build 2018 PM Peak

8/4/2016

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	211	473	387	70	79	214
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	0	1	1
Cap, veh/h	509	1159	635	115	306	442
Arrive On Green	0.11	0.62	0.41	0.41	0.17	0.17
Sat Flow, veh/h	1774	1863	1536	277	1774	1583
Grp Volume(v), veh/h	229	514	0	497	86	233
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1814	1774	1583
Q Serve(g_s), s	3.2	7.0	0.0	10.8	2.1	6.1
Cycle Q Clear(g_c), s	3.2	7.0	0.0	10.8	2.1	6.1
Prop In Lane	1.00			0.15	1.00	1.00
Lane Grp Cap(c), veh/h	509	1159	0	749	306	442
V/C Ratio(X)	0.45	0.44	0.00	0.66	0.28	0.53
Avail Cap(c_a), veh/h	683	2178	0	1563	473	591
HCM Platoon Ratio	0.00	0.00	0.00	0.00	0.00	0.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.7	4.8	0.0	11.6	17.5	14.8
Incr Delay (d2), s/veh	0.6	0.3	0.0	1.0	0.5	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.9	1.9	0.0	3.9	0.8	0.1
Lane Grp Delay (d), s/veh	8.3	5.1	0.0	12.6	18.0	15.8
Lane Grp LOS	A	A		B	B	B
Approach Vol, veh/h		743	497		319	
Approach Delay, s/veh		6.1	12.6		16.4	
Approach LOS		A	B		B	
Timer						
Assigned Phs	7	4	8			
Phs Duration (G+Y+Rc), s	10.2	35.3	25.1			
Change Period (Y+Rc), s	5.0	5.0	5.0			
Max Green Setting (Gmax), s	10.0	57.0	42.0			
Max Q Clear Time (g_c+l1), s	5.2	9.0	12.8			
Green Ext Time (p_c), s	0.3	7.9	7.3			
Intersection Summary						
HCM 2010 Ctrl Delay			10.3			
HCM 2010 LOS			B			
Notes						

Intersection												
Intersection Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	18	340	178	1	303	4	101	3	6	5	7	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0		190	0		0	150		0	0		0
Median Width		0			0			12			12	
Grade, %		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	370	193	1	329	4	110	3	7	5	8	25
Number of Lanes	0	1	1	0	1	0	1	1	0	0	1	0

Major/Minor	Major 1			Major 2			Minor 1			Minor 2		
Conflicting Flow All	334	0	0	370	0	0	759	745	370	748	743	332
Stage 1	-	-	-	-	-	-	409	409	-	334	334	-
Stage 2	-	-	-	-	-	-	350	336	-	414	409	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1225	-	-	1189	-	-	323	342	676	329	343	710
Stage 1	-	-	-	-	-	-	619	596	-	680	643	-
Stage 2	-	-	-	-	-	-	666	642	-	616	596	-
Time blocked-Platoon, %	0	-	-	0	-	-	0	0	0	0	0	0
Mov Capacity-1 Maneuver	1225	-	-	1189	-	-	300	333	676	317	334	710
Mov Capacity-2 Maneuver	-	-	-	-	-	-	300	333	-	317	334	-
Stage 1	-	-	-	-	-	-	604	581	-	663	642	-
Stage 2	-	-	-	-	-	-	634	641	-	591	581	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	19.6	12.7
HCM LOS	-	-	C	B

Minor Lane / Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Cap, veh/h	300	328	1225	-	-	1189	-	-	506
HCM Control Delay, s	20.8	17.8	7.986	0	-	8.031	0	-	12.7
HCM Lane V/C Ratio	0.24	0.14	0.02	-	-	0.00	-	-	0.07
HCM Lane LOS	C	C	A	A	-	A	A	-	B
HCM 95th-tile Q, veh	0.9	0.5	0.0	-	-	0.0	-	-	0.2

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 Signalized Intersection Summary

3: US 22 & Nicholas Drive

No-Build 2038 AM Peak

8/4/2016

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	117	315	484	55	75	153
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	0	1	1
Cap, veh/h	448	1183	742	85	248	334
Arrive On Green	0.07	0.64	0.45	0.45	0.14	0.14
Sat Flow, veh/h	1774	1863	1642	187	1774	1583
Grp Volume(v), veh/h	127	342	0	586	82	166
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1830	1774	1583
Q Serve(g_s), s	1.5	3.6	0.0	11.5	1.9	4.1
Cycle Q Clear(g_c), s	1.5	3.6	0.0	11.5	1.9	4.1
Prop In Lane	1.00			0.10	1.00	1.00
Lane Grp Cap(c), veh/h	448	1183	0	826	248	334
V/C Ratio(X)	0.28	0.29	0.00	0.71	0.33	0.50
Avail Cap(c_a), veh/h	720	2387	0	1728	519	576
HCM Platoon Ratio	0.00	0.00	0.00	0.00	0.00	0.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.9	3.6	0.0	9.8	17.2	15.5
Incr Delay (d2), s/veh	0.3	0.1	0.0	1.1	0.8	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.4	0.9	0.0	4.0	0.8	0.1
Lane Grp Delay (d), s/veh	7.2	3.8	0.0	11.0	18.0	16.6
Lane Grp LOS	A	A		B	B	B
Approach Vol, veh/h		469	586		248	
Approach Delay, s/veh		4.7	11.0		17.1	
Approach LOS		A	B		B	
Timer						
Assigned Phs	7	4	8			
Phs Duration (G+Y+Rc), s	8.2	33.3	25.1			
Change Period (Y+Rc), s	5.0	5.0	5.0			
Max Green Setting (Gmax), s	10.0	57.0	42.0			
Max Q Clear Time (g_c+l1), s	3.5	5.6	13.5			
Green Ext Time (p_c), s	0.1	7.2	6.6			
Intersection Summary						
HCM 2010 Ctrl Delay			9.9			
HCM 2010 LOS			A			
Notes						

Intersection												
Intersection Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	12	276	72	0	351	7	158	1	4	4	3	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0		190	0		0	150		0	0		0
Median Width		0			0			12			12	
Grade, %		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	300	78	0	382	8	172	1	4	4	3	21
Number of Lanes	0	1	1	0	1	0	1	1	0	0	1	0
Major/Minor	Major 1			Major 2			Minor 1			Minor 2		
Conflicting Flow All	389	0	0	300	0	0	723	715	300	714	711	385
Stage 1	-	-	-	-	-	-	326	326	-	385	385	-
Stage 2	-	-	-	-	-	-	397	389	-	329	326	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1170	-	-	1261	-	-	342	356	740	346	358	663
Stage 1	-	-	-	-	-	-	687	648	-	638	611	-
Stage 2	-	-	-	-	-	-	629	608	-	684	648	-
Time blocked-Platoon, %	0	-	-	0	-	-	0	0	0	0	0	0
Mov Capacity-1 Maneuver	1170	-	-	1261	-	-	326	351	740	339	353	663
Mov Capacity-2 Maneuver	-	-	-	-	-	-	326	351	-	339	353	-
Stage 1	-	-	-	-	-	-	677	639	-	629	611	-
Stage 2	-	-	-	-	-	-	606	608	-	669	639	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0			20.5			12.2		
HCM LOS	-			-			C			B		
Minor Lane / Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Cap, veh/h	326	340	1170	-	-	1261	-	-	531			
HCM Control Delay, s	21.9	18	8.112	0	-	0	-	-	12.2			
HCM Lane V/C Ratio	0.35	0.18	0.01	-	-	-	-	-	0.05			
HCM Lane LOS	C	C	A	A	-	A	-	-	B			
HCM 95th-tile Q, veh	1.5	0.7	0.0	-	-	0.0	-	-	0.2			
Notes												

HCM 2010 Signalized Intersection Summary

3: US 22 & Nicholas Drive

No-Build 2038 PM Peak
8/4/2016

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	292	655	536	96	109	297
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	1	0	1	1
Cap, veh/h	430	1242	739	132	334	479
Arrive On Green	0.11	0.67	0.48	0.48	0.19	0.19
Sat Flow, veh/h	1774	1863	1540	275	1774	1583
Grp Volume(v), veh/h	317	712	0	687	118	323
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1814	1774	1583
Q Serve(g_s), s	5.7	14.2	0.0	21.9	4.0	12.3
Cycle Q Clear(g_c), s	5.7	14.2	0.0	21.9	4.0	12.3
Prop In Lane	1.00			0.15	1.00	1.00
Lane Grp Cap(c), veh/h	430	1242	0	871	334	479
V/C Ratio(X)	0.74	0.57	0.00	0.79	0.35	0.67
Avail Cap(c_a), veh/h	484	1538	0	1104	334	479
HCM Platoon Ratio	0.00	0.00	0.00	0.00	0.00	0.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.7	6.2	0.0	15.0	24.4	21.1
Incr Delay (d2), s/veh	5.2	0.4	0.0	3.0	0.6	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	3.2	4.5	0.0	8.9	1.7	0.5
Lane Grp Delay (d), s/veh	17.9	6.6	0.0	18.1	25.0	24.8
Lane Grp LOS	B	A		B	C	C
Approach Vol, veh/h		1029	687		441	
Approach Delay, s/veh		10.1	18.1		24.9	
Approach LOS		B	B		C	
Timer						
Assigned Phs	7	4	8			
Phs Duration (G+Y+Rc), s	12.9	51.0	38.1			
Change Period (Y+Rc), s	5.0	5.0	5.0			
Max Green Setting (Gmax), s	10.0	57.0	42.0			
Max Q Clear Time (g_c+I1), s	7.7	16.2	23.9			
Green Ext Time (p_c), s	0.2	13.1	9.3			
Intersection Summary						
HCM 2010 Ctrl Delay			15.6			
HCM 2010 LOS			B			
Notes						

Intersection												
Intersection Delay, s/veh	5.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	24	471	246	1	419	6	140	4	9	7	10	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0		190	0		0	150		0	0		0
Median Width		0			0			12			12	
Grade, %		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	512	267	1	455	7	152	4	10	8	11	35
Number of Lanes	0	1	1	0	1	0	1	1	0	0	1	0

Major/Minor	Major 1			Major 2			Minor 1			Minor 2		
Conflicting Flow All	462	0	0	512	0	0	1048	1028	512	1032	1025	459
Stage 1	-	-	-	-	-	-	564	564	-	461	461	-
Stage 2	-	-	-	-	-	-	484	464	-	571	564	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1099	-	-	1053	-	-	206	234	562	211	235	602
Stage 1	-	-	-	-	-	-	510	508	-	581	565	-
Stage 2	-	-	-	-	-	-	564	564	-	506	508	-
Time blocked-Platoon, %	0	-	-	0	-	-	0	0	0	0	0	0
Mov Capacity-1 Maneuver	1099	-	-	1053	-	-	181	223	562	197	224	602
Mov Capacity-2 Maneuver	-	-	-	-	-	-	181	223	-	197	224	-
Stage 1	-	-	-	-	-	-	488	486	-	555	564	-
Stage 2	-	-	-	-	-	-	521	563	-	471	486	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	41	16.4
HCM LOS	-	-	E	C

Minor Lane / Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Cap, veh/h	181	204	1099	-	-	1053	-	-	368
HCM Control Delay, s	47.6	30.7	8.355	0	-	8.422	0	-	16.4
HCM Lane V/C Ratio	0.56	0.32	0.02	-	-	0.00	-	-	0.14
HCM Lane LOS	E	D	A	A	-	A	A	-	C
HCM 95th-tile Q, veh	3.0	1.3	0.1	-	-	0.0	-	-	0.5

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 Signalized Intersection Summary

3: Fairgrounds/Nicholas Drive & US 22

Build 2018 AM Peak

8/4/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	84	228	70	20	349	40	70	10	20	54	10	110
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	0	1	1	0	1	1	0	0	1	1
Cap, veh/h	319	481	147	370	525	60	116	215	430	558	95	612
Arrive On Green	0.05	0.35	0.35	0.02	0.32	0.32	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	1774	1369	420	1774	1643	186	1254	556	1111	1166	246	1583
Grp Volume(v), veh/h	91	0	324	22	0	422	76	0	33	70	0	120
Grp Sat Flow(s),veh/h/ln	1774	0	1789	1774	0	1830	1254	0	1667	1413	0	1583
Q Serve(g_s), s	2.0	0.0	8.9	0.5	0.0	12.7	0.0	0.0	0.8	23.2	0.0	3.1
Cycle Q Clear(g_c), s	2.0	0.0	8.9	0.5	0.0	12.7	24.0	0.0	0.8	24.0	0.0	3.1
Prop In Lane	1.00		0.23	1.00		0.10	1.00		0.67	0.84		1.00
Lane Grp Cap(c), veh/h	319	0	628	370	0	584	116	0	645	653	0	612
V/C Ratio(X)	0.28	0.00	0.52	0.06	0.00	0.72	0.65	0.00	0.05	0.11	0.00	0.20
Avail Cap(c_a), veh/h	513	0	1470	620	0	1504	116	0	645	653	0	612
HCM Platoon Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.6	0.0	16.0	14.1	0.0	18.7	31.0	0.0	11.9	27.2	0.0	12.6
Incr Delay (d2), s/veh	0.5	0.0	0.7	0.1	0.0	1.7	12.5	0.0	0.0	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.8	0.0	3.6	0.2	0.0	5.4	1.5	0.0	0.3	1.0	0.0	1.1
Lane Grp Delay (d), s/veh	14.0	0.0	16.6	14.2	0.0	20.4	43.5	0.0	11.9	27.3	0.0	12.8
Lane Grp LOS	B		B	B		C	D		B	C		B
Approach Vol, veh/h		415			444			109			190	
Approach Delay, s/veh		16.0			20.1			34.0			18.1	
Approach LOS		B			C			C			B	
Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	8.2	26.8		6.3	24.8			29.0			29.0	
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0			5.0			5.0	
Max Green Setting (Gmax), s	10.0	51.0		10.0	51.0			24.0			24.0	
Max Q Clear Time (g_c+I1), s	4.0	10.9		2.5	14.7			26.0			26.0	
Green Ext Time (p_c), s	0.1	5.2		0.0	5.2			0.0			0.0	
Intersection Summary												
HCM 2010 Ctrl Delay			19.6									
HCM 2010 LOS			B									
Notes												

Intersection

Intersection Delay, s/veh 3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	8	212	60	0	266	5	122	1	3	3	2	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0		190	0		0	150		0	0		0
Median Width		12			12			12			12	
Grade, %		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	230	65	0	289	5	133	1	3	3	2	15
Number of Lanes	0	1	1	0	1	0	1	1	0	0	1	0

Major/Minor	Major 1			Major 2			Minor 1			Minor 2		
Conflicting Flow All	295	0	0	230	0	0	549	543	230	542	540	292
Stage 1	-	-	-	-	-	-	248	248	-	292	292	-
Stage 2	-	-	-	-	-	-	301	295	-	250	248	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1266	-	-	1338	-	-	446	447	809	451	449	747
Stage 1	-	-	-	-	-	-	756	701	-	716	671	-
Stage 2	-	-	-	-	-	-	708	669	-	754	701	-
Time blocked-Platoon, %	0	-	-	0	-	-	0	0	0	0	0	0
Mov Capacity-1 Maneuver	1266	-	-	1338	-	-	432	443	809	445	445	747
Mov Capacity-2 Maneuver	-	-	-	-	-	-	432	443	-	445	445	-
Stage 1	-	-	-	-	-	-	749	695	-	710	671	-
Stage 2	-	-	-	-	-	-	691	669	-	743	695	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	15	10.9
HCM LOS	-	-	C	B

Minor Lane / Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Cap, veh/h	432	446	1266	-	-	1338	-	-	634
HCM Control Delay, s	15.5	14.1	7.863	0	-	0	-	-	10.9
HCM Lane V/C Ratio	0.21	0.11	0.01	-	-	-	-	-	0.03
HCM Lane LOS	C	B	A	A	-	A	-	-	B
HCM 95th-tile Q, veh	0.8	0.4	0.0	-	-	0.0	-	-	0.1

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 Signalized Intersection Summary

3: Fairgrounds/Nicholas Drive & US 22

Build 2018 PM Peak

8/4/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	211	473	70	20	387	70	70	10	20	79	10	214
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	0	1	1	0	1	1	0	0	1	1
Cap, veh/h	389	710	105	284	570	103	98	182	364	486	57	519
Arrive On Green	0.10	0.45	0.45	0.02	0.37	0.37	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1774	1587	235	1774	1536	277	1131	556	1111	1201	173	1583
Grp Volume(v), veh/h	229	0	590	22	0	497	76	0	33	97	0	233
Grp Sat Flow(s),veh/h/ln	1774	0	1821	1774	0	1814	1131	0	1667	1374	0	1583
Q Serve(g_s), s	4.7	0.0	19.4	0.6	0.0	17.4	0.0	0.0	1.0	23.0	0.0	8.5
Cycle Q Clear(g_c), s	4.7	0.0	19.4	0.6	0.0	17.4	24.0	0.0	1.0	24.0	0.0	8.5
Prop In Lane	1.00		0.13	1.00		0.15	1.00		0.67	0.89		1.00
Lane Grp Cap(c), veh/h	389	0	815	284	0	673	98	0	546	543	0	519
V/C Ratio(X)	0.59	0.00	0.72	0.08	0.00	0.74	0.77	0.00	0.06	0.18	0.00	0.45
Avail Cap(c_a), veh/h	630	0	1269	491	0	1090	98	0	546	543	0	519
HCM Platoon Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.5	0.0	16.5	15.1	0.0	19.9	36.6	0.0	16.9	35.0	0.0	19.4
Incr Delay (d2), s/veh	1.4	0.0	1.2	0.1	0.0	1.6	30.8	0.0	0.0	0.2	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	1.8	0.0	8.0	0.2	0.0	7.5	2.2	0.0	0.4	1.7	0.0	3.2
Lane Grp Delay (d), s/veh	14.9	0.0	17.8	15.2	0.0	21.6	67.4	0.0	16.9	35.2	0.0	20.0
Lane Grp LOS	B		B	B		C	E		B	D		B
Approach Vol, veh/h		819			519			109			330	
Approach Delay, s/veh		17.0			21.3			52.1			24.5	
Approach LOS		B			C			D			C	
Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	12.0	37.8		6.4	32.2			29.0			29.0	
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0			5.0			5.0	
Max Green Setting (Gmax), s	17.0	51.0		10.0	44.0			24.0			24.0	
Max Q Clear Time (g_c+I1), s	6.7	21.4		2.6	19.4			26.0			26.0	
Green Ext Time (p_c), s	0.5	8.2		0.0	7.8			0.0			0.0	
Intersection Summary												
HCM 2010 Ctrl Delay			21.8									
HCM 2010 LOS			C									
Notes												

Intersection												
Intersection Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	18	352	186	1	315	4	109	3	6	5	7	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0		190	0		0	150		0	0		0
Median Width		12			12			12			12	
Grade, %		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	383	202	1	342	4	118	3	7	5	8	25
Number of Lanes	0	1	1	0	1	0	1	1	0	0	1	0

Major/Minor	Major 1			Major 2			Minor 1			Minor 2		
Conflicting Flow All	347	0	0	383	0	0	785	771	383	774	769	345
Stage 1	-	-	-	-	-	-	422	422	-	347	347	-
Stage 2	-	-	-	-	-	-	363	349	-	427	422	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1212	-	-	1175	-	-	310	331	664	316	332	698
Stage 1	-	-	-	-	-	-	609	588	-	669	635	-
Stage 2	-	-	-	-	-	-	656	633	-	606	588	-
Time blocked-Platoon, %	0	-	-	0	-	-	0	0	0	0	0	0
Mov Capacity-1 Maneuver	1212	-	-	1175	-	-	288	322	664	304	323	698
Mov Capacity-2 Maneuver	-	-	-	-	-	-	288	322	-	304	323	-
Stage 1	-	-	-	-	-	-	594	573	-	652	634	-
Stage 2	-	-	-	-	-	-	624	632	-	582	573	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	20.8	12.9
HCM LOS	-	-	C	B

Minor Lane / Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Cap, veh/h	288	314	1212	-	-	1175	-	-	492
HCM Control Delay, s	22.2	18.6	8.019	0	-	8.067	0	-	12.9
HCM Lane V/C Ratio	0.27	0.16	0.02	-	-	0.00	-	-	0.08
HCM Lane LOS	C	C	A	A	-	A	A	-	B
HCM 95th-tile Q, veh	1.1	0.5	0.0	-	-	0.0	-	-	0.3

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 Signalized Intersection Summary

3: Fairgrounds/Nicholas Drive & US 22

Build 2038 AM Peak

8/4/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	117	315	70	20	484	55	70	10	20	75	10	153
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	0	1	1	0	1	1	0	0	1	1
Cap, veh/h	296	650	145	389	655	75	93	193	386	504	62	550
Arrive On Green	0.06	0.44	0.44	0.02	0.40	0.40	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1774	1477	328	1774	1642	187	1203	556	1111	1200	179	1583
Grp Volume(v), veh/h	127	0	418	22	0	586	76	0	33	93	0	166
Grp Sat Flow(s),veh/h/ln	1774	0	1805	1774	0	1830	1203	0	1667	1379	0	1583
Q Serve(g_s), s	3.0	0.0	13.1	0.6	0.0	22.0	0.0	0.0	1.0	26.0	0.0	5.9
Cycle Q Clear(g_c), s	3.0	0.0	13.1	0.6	0.0	22.0	27.0	0.0	1.0	27.0	0.0	5.9
Prop In Lane	1.00		0.18	1.00		0.10	1.00		0.67	0.88		1.00
Lane Grp Cap(c), veh/h	296	0	795	389	0	729	93	0	579	566	0	550
V/C Ratio(X)	0.43	0.00	0.53	0.06	0.00	0.80	0.82	0.00	0.06	0.16	0.00	0.30
Avail Cap(c_a), veh/h	416	0	1114	583	0	1129	93	0	579	566	0	550
HCM Platoon Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.2	0.0	15.8	14.0	0.0	20.7	38.9	0.0	16.9	37.0	0.0	18.5
Incr Delay (d2), s/veh	1.0	0.0	0.5	0.1	0.0	2.4	42.1	0.0	0.0	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	1.2	0.0	5.3	0.2	0.0	9.4	2.5	0.0	0.4	1.8	0.0	2.2
Lane Grp Delay (d), s/veh	16.2	0.0	16.4	14.0	0.0	23.1	81.0	0.0	16.9	37.2	0.0	18.8
Lane Grp LOS	B		B	B		C	F		B	D		B
Approach Vol, veh/h		545			608			109			259	
Approach Delay, s/veh		16.3			22.8			61.6			25.4	
Approach LOS		B			C			E			C	
Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	9.8	39.2		6.5	36.0			32.0			32.0	
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0			5.0			5.0	
Max Green Setting (Gmax), s	10.0	48.0		10.0	48.0			27.0			27.0	
Max Q Clear Time (g_c+I1), s	5.0	15.1		2.6	24.0			29.0			29.0	
Green Ext Time (p_c), s	0.1	7.6		0.0	7.0			0.0			0.0	
Intersection Summary												
HCM 2010 Ctrl Delay			23.7									
HCM 2010 LOS			C									
Notes												

Intersection

Intersection Delay, s/veh 4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	12	288	80	0	363	7	166	1	4	4	3	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0		190	0		0	150		0	0		0
Median Width		12			12			12			12	
Grade, %		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	313	87	0	395	8	180	1	4	4	3	21
Number of Lanes	0	1	1	0	1	0	1	1	0	0	1	0

Major/Minor	Major 1			Major 2			Minor 1			Minor 2		
Conflicting Flow All	402	0	0	313	0	0	749	741	313	740	737	398
Stage 1	-	-	-	-	-	-	339	339	-	398	398	-
Stage 2	-	-	-	-	-	-	410	402	-	342	339	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1157	-	-	1247	-	-	328	344	727	333	346	652
Stage 1	-	-	-	-	-	-	676	640	-	628	603	-
Stage 2	-	-	-	-	-	-	619	600	-	673	640	-
Time blocked-Platoon, %	0	-	-	0	-	-	0	0	0	0	0	0
Mov Capacity-1 Maneuver	1157	-	-	1247	-	-	312	339	727	326	341	652
Mov Capacity-2 Maneuver	-	-	-	-	-	-	312	339	-	326	341	-
Stage 1	-	-	-	-	-	-	666	630	-	619	603	-
Stage 2	-	-	-	-	-	-	596	600	-	658	630	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	21.9	12.4
HCM LOS	-	-	C	B

Minor Lane / Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Cap, veh/h	312	325	1157	-	-	1247	-	-	518
HCM Control Delay, s	23.6	18.9	8.147	0	-	0	-	-	12.4
HCM Lane V/C Ratio	0.39	0.20	0.01	-	-	-	-	-	0.06
HCM Lane LOS	C	C	A	A	-	A	-	-	B
HCM 95th-tile Q, veh	1.8	0.7	0.0	-	-	0.0	-	-	0.2

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

HCM 2010 Signalized Intersection Summary
3: Fairgrounds/Nicholas Drive & US 22

Build 2038 PM Peak

8/4/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	292	655	70	20	536	96	70	10	20	109	10	297
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	1	0	1	1	0	1	1	0	0	1	1
Cap, veh/h	359	901	96	251	717	128	81	149	299	403	34	426
Arrive On Green	0.10	0.54	0.54	0.02	0.47	0.47	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1774	1655	177	1774	1540	275	1042	556	1111	1212	127	1583
Grp Volume(v), veh/h	317	0	788	22	0	687	76	0	33	129	0	323
Grp Sat Flow(s),veh/h/ln	1774	0	1832	1774	0	1814	1042	0	1667	1339	0	1583
Q Serve(g_s), s	6.5	0.0	30.7	0.6	0.0	29.1	0.0	0.0	1.3	22.7	0.0	16.7
Cycle Q Clear(g_c), s	6.5	0.0	30.7	0.6	0.0	29.1	24.0	0.0	1.3	24.0	0.0	16.7
Prop In Lane	1.00		0.10	1.00		0.15	1.00		0.67	0.91		1.00
Lane Grp Cap(c), veh/h	359	0	997	251	0	845	81	0	448	437	0	426
V/C Ratio(X)	0.88	0.00	0.79	0.09	0.00	0.81	0.94	0.00	0.07	0.30	0.00	0.76
Avail Cap(c_a), veh/h	385	0	1046	416	0	1036	81	0	448	437	0	426
HCM Platoon Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.4	0.0	16.3	15.3	0.0	20.5	44.6	0.0	24.4	80.8	0.0	30.0
Incr Delay (d2), s/veh	19.9	0.0	4.0	0.1	0.0	4.2	80.8	0.0	0.1	0.4	0.0	7.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	9.0	0.0	13.4	0.2	0.0	12.8	3.5	0.0	0.6	0.0	0.0	7.2
Lane Grp Delay (d), s/veh	38.3	0.0	20.3	15.4	0.0	24.6	125.4	0.0	24.4	81.2	0.0	37.7
Lane Grp LOS	D		C	B		C	F		C	F		D
Approach Vol, veh/h	1105				709				109		452	
Approach Delay, s/veh	25.4				24.4				94.8		50.1	
Approach LOS	C				C				F		D	
Timer												
Assigned Phs	7	4			3	8			2			6
Phs Duration (G+Y+Rc), s	13.7	53.6			6.7	46.6			29.0			29.0
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0			5.0			5.0
Max Green Setting (Gmax), s	10.0	51.0			10.0	51.0			24.0			24.0
Max Q Clear Time (g_c+I1), s	8.5	32.7			2.6	31.1			26.0			26.0
Green Ext Time (p_c), s	0.2	10.0			0.0	10.5			0.0			0.0
Intersection Summary												
HCM 2010 Ctrl Delay			33.0									
HCM 2010 LOS			C									
Notes												

Intersection												
Intersection Delay, s/veh	6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	24	483	254	1	431	6	148	4	9	7	10	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0		190	0		0	150		0	0		0
Median Width		12			12			12			12	
Grade, %		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	525	276	1	468	7	161	4	10	8	11	35
Number of Lanes	0	1	1	0	1	0	1	1	0	0	1	0

Major/Minor	Major 1			Major 2			Minor 1			Minor 2		
Conflicting Flow All	475	0	0	525	0	0	1074	1054	525	1058	1051	472
Stage 1	-	-	-	-	-	-	577	577	-	474	474	-
Stage 2	-	-	-	-	-	-	497	477	-	584	577	-
Follow-up Headway	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Capacity-1 Maneuver	1087	-	-	1042	-	-	198	226	552	203	227	592
Stage 1	-	-	-	-	-	-	502	502	-	571	558	-
Stage 2	-	-	-	-	-	-	555	556	-	498	502	-
Time blocked-Platoon, %	0	-	-	0	-	-	0	0	0	0	0	0
Mov Capacity-1 Maneuver	1087	-	-	1042	-	-	173	215	552	189	216	592
Mov Capacity-2 Maneuver	-	-	-	-	-	-	173	215	-	189	216	-
Stage 1	-	-	-	-	-	-	479	479	-	545	557	-
Stage 2	-	-	-	-	-	-	512	555	-	462	479	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	46.4	16.8
HCM LOS	-	-	E	C

Minor Lane / Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Cap, veh/h	173	195	1087	-	-	1042	-	-	357
HCM Control Delay, s	54.8	33	8.393	0	-	8.459	0	-	16.8
HCM Lane V/C Ratio	0.62	0.35	0.02	-	-	0.00	-	-	0.15
HCM Lane LOS	F	D	A	A	-	A	A	-	C
HCM 95th-tile Q, veh	3.4	1.5	0.1	-	-	0.0	-	-	0.5

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Appendix C

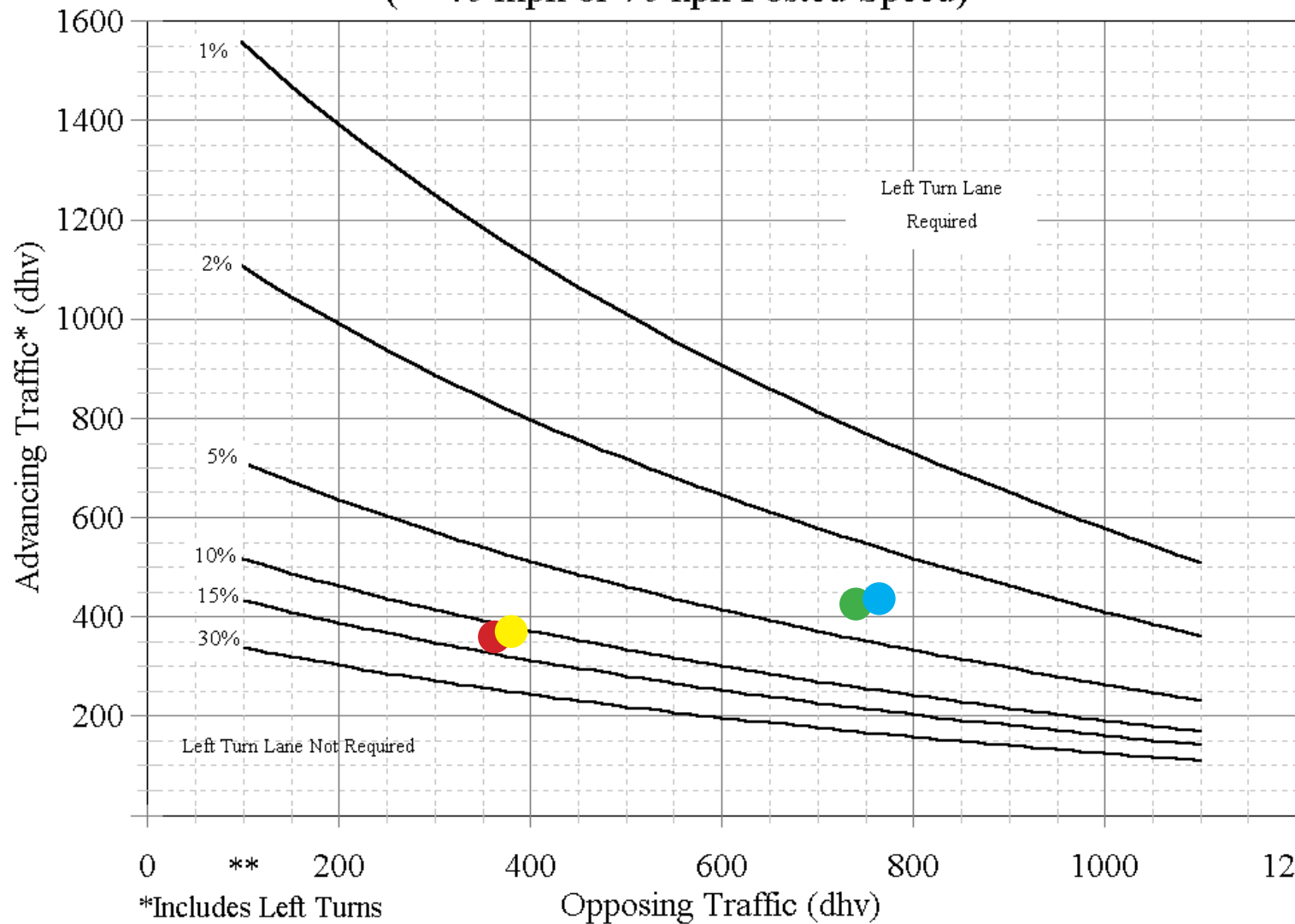
Turn Lane Warrants and Sizing

US 22 @ Stoutsville Pike

Westbound Left Turn

2-Lane Highway Left Turn Lane Warrant

(= $\leq$ 40 mph or 70 kph Posted Speed)



AM Peak - No Build

359 advancing
360 opposing
0.3% left turns

NOT WARRANTED

AM Peak - Build

371 advancing
380 opposing
0.3% left turns

NOT WARRANTED

PM Peak - No Build

426 advancing
741 opposing
0.2% left turns

NOT WARRANTED

PM Peak - Build

438 advancing
761 opposing
0.2% left turns

NOT WARRANTED

ODOT L&D Manual Lane Sizing Calculation Worksheet (updated May 2010)

Input Data:

Intersection -- US 22 @ Nicholas Drive
Movement -- EB Left - No-Build

Approach Type Signalized

Design Speed	35 mph	Offset?	N
Cycle Length	90 sec		
Cycles/Hour	40.0	ODOT job?	Y
Turn Lane Volume	292 veh.	Cols. job?	N
Approach Volume	947	other job?	N
Vol. in Adj. Thru Lane	655 veh.		
No. of Turn Lanes	1 (1 or 2)		
Actual Veh./Cycle	7.30		50
Veh./Cycle Analyzed	8		

Output Data:

	Taper	Decel	Storage	Total
Method A (Storage only)	50	0	325	375
Method B (High Speed Decel. Only)	N/A	N/A	N/A	N/A
Method C (Mod. Speed Decel./Storage)	N/A	N/A	N/A	N/A

No-Block Storage Length

600

Comments:

ODOT L&D Manual Lane Sizing Calculation Worksheet (updated May 2010)

Input Data:

Intersection -- Nicholas Drive @ US 22
Movement -- SB Left - No-Build

Approach Type Signalized

Design Speed	35 mph	Offset?	N
Cycle Length	90 sec		
Cycles/Hour	40.0	ODOT job?	Y
Turn Lane Volume	109 veh.	Cols. job?	N
Approach Volume	406	other job?	N
Vol. in Adj. Thru Lane	297 veh.		
No. of Turn Lanes	1 (1 or 2)		
Actual Veh./Cycle	2.73		50
Veh./Cycle Analyzed	3		

Output Data:

	Taper	Decel	Storage	Total
Method A (Storage only)	50	0	150	200
Method B (High Speed Decel. Only)	N/A	N/A	N/A	N/A
Method C (Mod. Speed Decel./Storage)	N/A	N/A	N/A	N/A

No-Block Storage Length

325

Comments:

ODOT L&D Manual Lane Sizing Calculation Worksheet (updated May 2010)

Input Data:

Intersection -- Nicholas Drive @ US 22

Movement -- SB Right - No-Build

Approach Type Signalized

Design Speed 35 mph

Cycle Length 90 sec

Cycles/Hour **40.0**

Turn Lane Volume 297 veh.

Approach Volume 406

Vol. in Adj. Thru Lane 109 veh.

No. of Turn Lanes 1 (1 or 2)

Actual Veh./Cycle **7.43**

Veh./Cycle Analyzed 8

Offset? N

ODOT job? Y

Cols. job? N

other job? N

50

Output Data:

	Taper	Decel	Storage	Total
Method A (Storage only)	50	0	325	375
Method B (High Speed Decel. Only)	N/A	N/A	N/A	N/A
Method C (Mod. Speed Decel./Storage)	N/A	N/A	N/A	N/A

No-Block Storage Length

150

Comments:

ODOT L&D Manual Lane Sizing Calculation Worksheet (updated May 2010)

Input Data:

Intersection -- US 22 @ Stoutsville Pike

Movement -- EB Right - No-Build

Approach Type Unsignalized Through

Design Speed 35 mph

Cycle Length 60 sec

Cycles/Hour **60.0**

Turn Lane Volume 246 veh.

Approach Volume 741

Vol. in Adj. Thru Lane 495 veh.

No. of Turn Lanes 1 (1 or 2)

Actual Veh./Cycle **4.10**

Veh./Cycle Analyzed 5

Offset? N

ODOT job? Y

Cols. job? N

other job? N

50

Output Data:

	Taper	Decel	Storage	Total
Method A (Storage only)	50	0	200	250
Method B (High Speed Decel. Only)	N/A	N/A	N/A	N/A
Method C (Mod. Speed Decel./Storage)	N/A	N/A	N/A	N/A

No-Block Storage Length

N/A

Comments:

ODOT L&D Manual Lane Sizing Calculation Worksheet (updated May 2010)

Input Data:

Intersection -- Stoutsville Pike @ US 22
Movement -- NB Left - No-Build

Approach Type Unsignalized Stopped

Design Speed	35 mph	Offset?	N
Cycle Length	60 sec		
Cycles/Hour	60.0	ODOT job?	Y
Turn Lane Volume	158 veh.	Cols. job?	N
Approach Volume	163	other job?	N
Vol. in Adj. Thru Lane	5 veh.		
No. of Turn Lanes	1 (1 or 2)		
Actual Veh./Cycle	2.63		50
Veh./Cycle Analyzed	3		

Output Data:

	Taper	Decel	Storage	Total
Method A (Storage only)	50	0	150	200
Method B (High Speed Decel. Only)	N/A	N/A	N/A	N/A
Method C (Mod. Speed Decel./Storage)	N/A	N/A	N/A	N/A

No-Block Storage Length

N/A

Comments:

ODOT L&D Manual Lane Sizing Calculation Worksheet (updated May 2010)

Input Data:

Intersection -- US 22 @ Nicholas Drive
Movement -- EB Left - Build

Approach Type Signalized

Design Speed	35 mph	Offset?	N
Cycle Length	90 sec		
Cycles/Hour	40.0	ODOT job?	Y
Turn Lane Volume	292 veh.	Cols. job?	N
Approach Volume	1017	other job?	N
Vol. in Adj. Thru Lane	725 veh.		
No. of Turn Lanes	1 (1 or 2)		
Actual Veh./Cycle	7.30		50
Veh./Cycle Analyzed	8		

Output Data:

	Taper	Decel	Storage	Total
Method A (Storage only)	50	0	325	375
Method B (High Speed Decel. Only)	N/A	N/A	N/A	N/A
Method C (Mod. Speed Decel./Storage)	N/A	N/A	N/A	N/A

No-Block Storage Length

650

Comments:

ODOT L&D Manual Lane Sizing Calculation Worksheet (updated May 2010)

Input Data:

Intersection -- US 22 @ Nicholas Drive
Movement -- EB Left - Build

Approach Type Signalized

Design Speed	35 mph	Offset?	N
Cycle Length	90 sec		
Cycles/Hour	40.0	ODOT job?	Y
Turn Lane Volume	20 veh.	Cols. job?	N
Approach Volume	652	other job?	N
Vol. in Adj. Thru Lane	632 veh.		
No. of Turn Lanes	1 (1 or 2)		
Actual Veh./Cycle	0.50		50
Veh./Cycle Analyzed	1		

Output Data:

	Taper	Decel	Storage	Total
Method A (Storage only)	50	0	50	100
Method B (High Speed Decel. Only)	N/A	N/A	N/A	N/A
Method C (Mod. Speed Decel./Storage)	N/A	N/A	N/A	N/A

No-Block Storage Length

550

Comments:

ODOT L&D Manual Lane Sizing Calculation Worksheet (updated May 2010)

Input Data:

Intersection -- US 22 @ Nicholas Drive
Movement -- EB Left - Build

Approach Type Signalized

Design Speed	35 mph	Offset?	N
Cycle Length	90 sec		
Cycles/Hour	40.0	ODOT job?	Y
Turn Lane Volume	70 veh.	Cols. job?	N
Approach Volume	100	other job?	N
Vol. in Adj. Thru Lane	30 veh.		
No. of Turn Lanes	1 (1 or 2)		
Actual Veh./Cycle	1.75		50
Veh./Cycle Analyzed	2		

Output Data:

	Taper	Decel	Storage	Total
Method A (Storage only)	50	0	100	150
Method B (High Speed Decel. Only)	N/A	N/A	N/A	N/A
Method C (Mod. Speed Decel./Storage)	N/A	N/A	N/A	N/A

No-Block Storage Length

50

Comments:

ODOT L&D Manual Lane Sizing Calculation Worksheet (updated May 2010)

Input Data:

Intersection -- Nicholas Drive @ US 22

Movement -- SB Right - Build

Approach Type Signalized

Design Speed 35 mph

Cycle Length 90 sec

Cycles/Hour **40.0**

Turn Lane Volume 297 veh.

Approach Volume 416

Vol. in Adj. Thru Lane 119 veh.

No. of Turn Lanes 1 (1 or 2)

Actual Veh./Cycle **7.43**

Veh./Cycle Analyzed 8

Offset? N

ODOT job? Y

Cols. job? N

other job? N

50

Output Data:

	Taper	Decel	Storage	Total
Method A (Storage only)	50	0	325	375
Method B (High Speed Decel. Only)	N/A	N/A	N/A	N/A
Method C (Mod. Speed Decel./Storage)	N/A	N/A	N/A	N/A

No-Block Storage Length

150

Comments:

ODOT L&D Manual Lane Sizing Calculation Worksheet (updated May 2010)

Input Data:

Intersection -- US 22 @ Stoutsville Pike

Movement -- EB Right - No-Build

Approach Type Unsignalized Through

Design Speed 35 mph

Cycle Length 60 sec

Cycles/Hour **60.0**

Turn Lane Volume 254 veh.

Approach Volume 761

Vol. in Adj. Thru Lane 507 veh.

No. of Turn Lanes 1 (1 or 2)

Actual Veh./Cycle **4.23**

Veh./Cycle Analyzed 5

Offset? N

ODOT job? Y

Cols. job? N

other job? N

50

Output Data:

	Taper	Decel	Storage	Total
Method A (Storage only)	50	0	200	250
Method B (High Speed Decel. Only)	N/A	N/A	N/A	N/A
Method C (Mod. Speed Decel./Storage)	N/A	N/A	N/A	N/A

No-Block Storage Length

N/A

Comments:

ODOT L&D Manual Lane Sizing Calculation Worksheet (updated May 2010)

Input Data:

Intersection -- Stoutsville Pike @ US 22

Movement -- NB Left - No-Build

Approach Type Unsignalized Stopped

Design Speed 35 mph

Cycle Length 60 sec

Cycles/Hour **60.0**

Turn Lane Volume 166 veh.

Approach Volume 171

Vol. in Adj. Thru Lane 5 veh.

No. of Turn Lanes 1 (1 or 2)

Actual Veh./Cycle **2.77**

Veh./Cycle Analyzed 3

Offset? N

ODOT job? Y

Cols. job? N

other job? N

50

Output Data:

	Taper	Decel	Storage	Total
Method A (Storage only)	50	0	150	200
Method B (High Speed Decel. Only)	N/A	N/A	N/A	N/A
Method C (Mod. Speed Decel./Storage)	N/A	N/A	N/A	N/A

No-Block Storage Length

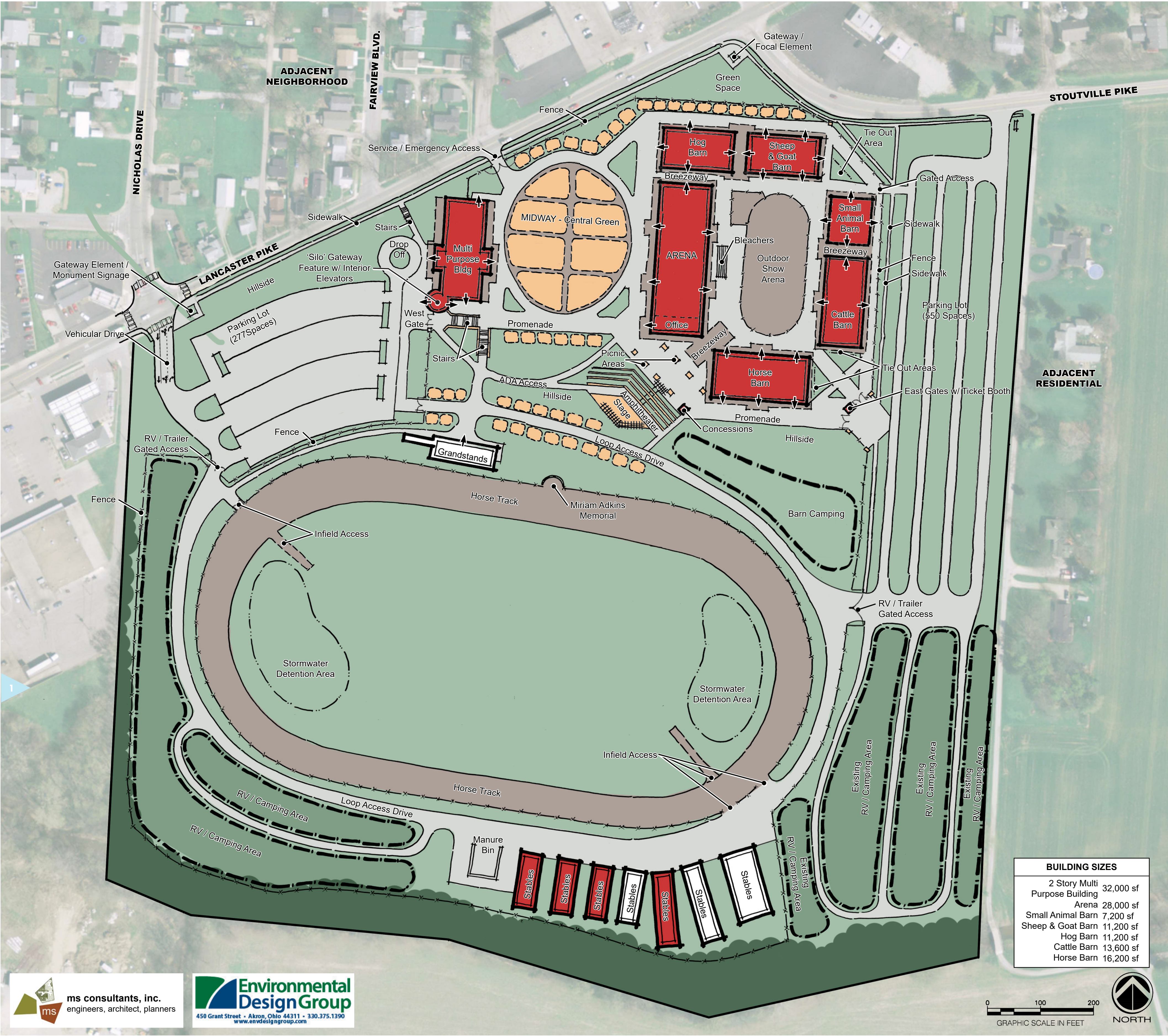
N/A

Comments:

Appendix F – Site Utilization Plan

PICKAWAY COUNTY FAIRGROUNDS

SITE UTILIZATION PLAN - September 20, 2016



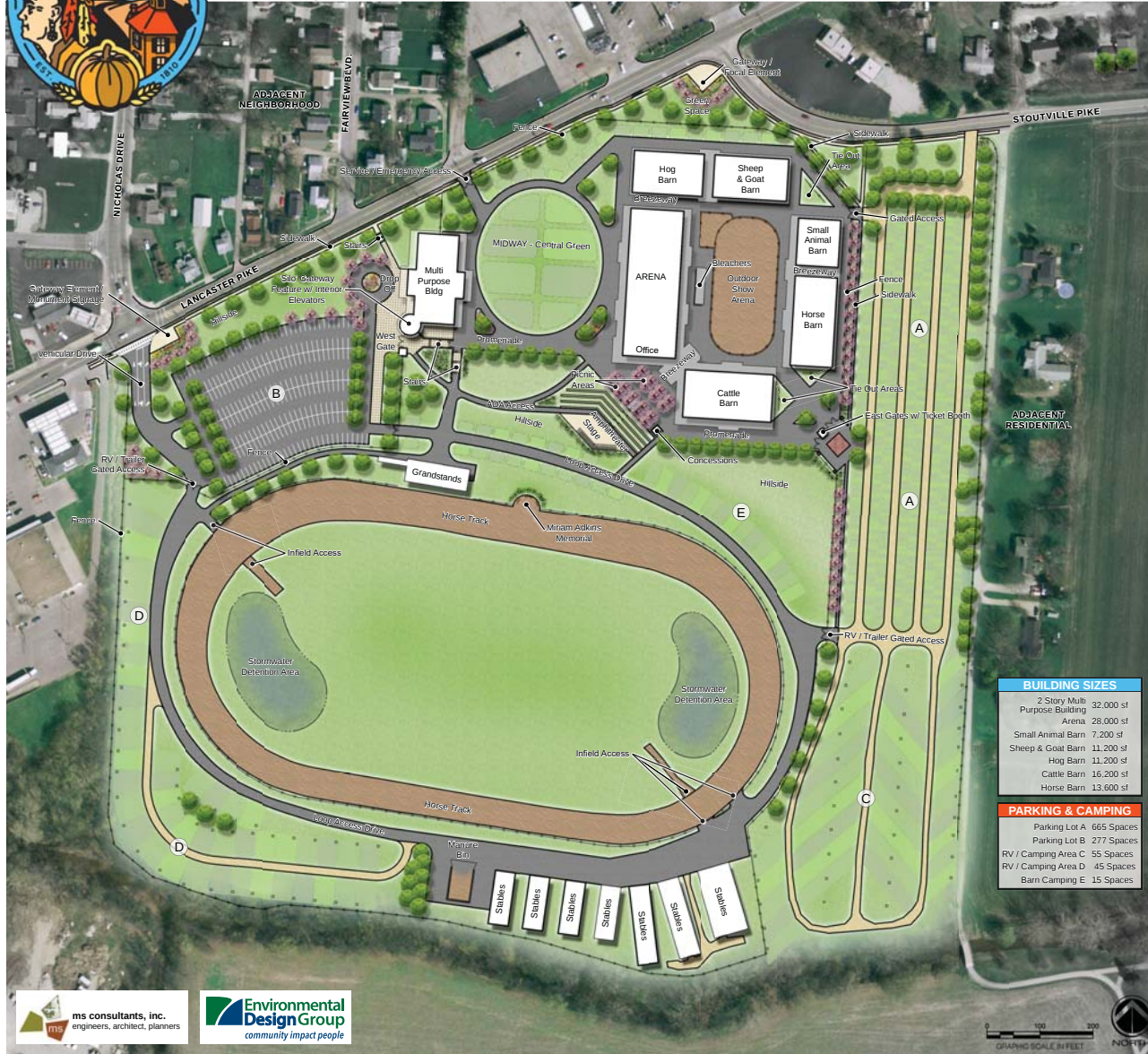
Appendix G – Proposed Building Renderings



PICKAWAY COUNTY FAIRGROUNDS

SITE MASTER PLAN

October 12, 2016





PICKAWAY COUNTY FAIRGROUNDS

WEST ENTRY GATE





PICKAWAY COUNTY FAIRGROUNDS

PROMENADE





PICKAWAY COUNTY FAIRGROUNDS

AMPHITHEATER





PICKAWAY COUNTY FAIRGROUNDS

SITE MASTER PLAN

