# Expansion Suburban Collection Showplace / Michigan State Fairgrounds

## **COMMUNITY IMPACT STATEMENT**











Prepared for the City of Novi Site Plan Submittal Process June 21, 2016



#### COMMUNITY IMPACT STATEMENT

Prepared for: City of Novi

Prepared by: TBON, LLC

Date: June 21, 2016

RE: Expansion Suburban Collection Showplace / Michigan State Fairgrounds

This Community Impact Statement is being submitted in accordance with the City of Novi Site Plan Submittal and Review Process. In considering and reviewing this Community Impact Statement, the City of Novi truly has the best evidence at its disposal of the positive nature of the community impact from the proposed expansion given the nearly 24 years of history of the Expo and Showplace operations residing within their borders. The development of a privately held exposition and convention center in a community is so unique, that literally, the Suburban Collection Showplace is the largest non-casino based non-publicly funded convention and exposition facility in the country! This unique development occurred only through building a very positive public-private working relationship. With continued cooperation the expansion of the Showplace and the adjacent state fairgrounds will allow for growth in the positive economic impact that the Showplace provides as well as the enhancement of cultural and community components.

Attached as Exhibit "A" is the application package of the recently passed PA-198 Tax Abatement which includes excerpts from economic impact studies demonstrating the significant local and region wide economic benefit and Exhibit "B" which is the 2015 annual report from the Fifth Third Bank Michigan State Fair (as is widely known as the Michigan State Fair was revived at the Suburban Collection Showplace in 2012) which provides one example of major community involvement and positive impacts on charitable community organizations. The current and expanded Showplace will continue to introduce Novi, literally, to the world as it continues to attract major international, national, and regional events.

In addition to the general information provided above, the Community Impact Statement is to contain certain specific information. Including the following:

- Expected annual number police responses for the proposed development. See Exhibit "C" relating to public safety visits.
- Expected number of annual fire responses for the proposed development. See Exhibit "C" relating to public safety visits.
- Anticipated number of employees please refer to the Exhibit "A" for the recently approved PA-198 Tax Abatement.



- Statement regarding compliance with city performance standards with the limited exception only as to those variances and waivers required for approval of the submitted site plan and pending zoning ordinance text amendments/re-zonings to the best of our knowledge, the project meets or exceeds all city performance standards.
- Estimated sewer and water taps a calculation and estimate request has been submitted to the Community Development and Building Department.
- Relationship of the proposed development with surrounding uses the proposed development is an expansion of the already existing Suburban Collection Showplace and an enhancement and expansion of the immediately adjacent State Fairgrounds located to the west of the Showplace site.
- A description of the proposed land use The proposed development includes the expansion
  of the physical events center portion of the Showplace facility and an expansion and
  enhancement of the fairgrounds to the immediate west. This expansion and enhancement
  will allow the Showplace to assist with the growth of their existing events and allow for
  the attraction of new major convention exposition and fair/festival style events.
- Description of environmental factors and impacts:

The expansion of the facility itself is contained wholly within the original Showplace site and attached to the west side of the facility with no environmental impacts whatsoever. The enhancement and expansion of the State Fairgrounds to the west including the installation of a significant amount of additional surfaced parking and outdoor function area will affect only a very modest amount of open ditch area technically requiring a MDEQ and City of Novi wetland permit. The proposed fill area is limited to 0.14 acres and added to the amount of fill for the installation for the green belt area prior to the 2015 State fair the fill activity in total is less than the state or city's requirement for mitigation. It is generally agreed that the area being filled is of extraordinary low environmental quality and no regulated woodland or tree species are being impacted. There are no underground storage tanks and the overall flexible fairground area of the site has been significantly enhanced and cleaned up from their prior use as outdoor storage and industrial yards. At the time of the submission of this statement an MDEQ permit has been applied for (Exhibit "D"). It is expected that this will be received and reviewed positively and a permit will be forthcoming within the next thirty days.

• A description of the social impacts of the development:

No relocation of any existing occupant is proposed; in fact, the small structures along the frontage of the enhanced fairgrounds site and to-be-installed-parking areas will remain in place and will not be displaced by the proposed development.

A coordinated effort as it relates to a traffic plan for future major events is underway. The plan contemplates a threshold of expected attendance and vehicle visits triggering a notification and coordination with agencies and departments including the Michigan



Department of Transportation, Oakland County Road Commission, State Police, City of Novi Police, City administration, Showplace staff and event producer representatives. A recent successful example of and a program to be used as a foundation for this plan was the traffic plan and implementation of that plan for the Motor City Comic-Con held last May.

In conclusion, overall, this proposed expansion and development will enhance the Grand River/I-96 Corridor; will allow for the growth of several critical existing events at the Showplace while also allowing for the attraction of many new diverse events, including amateur athletic events and large gathering events.

We look forward to presenting the overall site plan and working with the community on necessary zoning ordinance texts modifications and associated re-zonings.

Respectfully submitted,

TBON, LLC



#### **EXHIBIT A**

Copy of Application for PA-198 Tax Abatement

#### EXHIBIT B

2015 Fifth Third Bank Michigan State Fair Annual Report

### Exhibit "A"

## Application for PA 198 Tax Abatement



Prepared For:

## **City of Novi**

45175 10 Mile Rd. Novi, MI 48375 Ph: (248) 347-0460

Prepared By:

### **BoCo Enterprises, Inc.**

46100 Grand River Ave. Novi, MI 48374

Ph: (248) 348-5600

Fax: (248) 347-7720



BoCo Enterprises Inc. 46100 Grand River Avenue, Novi Michigan 48374 Phone 248.348.5600 Fax 248.347.7720

April 7, 2016

Mayor Robert Gatt Novi City Council City Manager, Pete Auger Members of City of Novi Administration 45175 Ten Mile Road Novi, MI 48375

RE:

Application for PA-198 Tax Abatement -- Expansion of Existing Industrial Facility – Suburban Collection Showplace (Convention Center as defined under the Act)

Dear Mayor Gatt, Council Members, Manager Auger and Members of the City Administration,

TBON, LLC is hereby pleased to submit our application under the City of Novi Tax Abatement policy for your consideration as it relates to the proposed expansion of the Suburban Collection Showplace Facility. It is our understanding that the Industrial Development District is already established and in accordance with the Act, the Showplace as previously abated meets the definition as an Industrial Facility being a privately funded exposition center in excess of 250,000 square feet which was constructed on or before 2010 amongst other criteria. We have completed and enclosed the application form, addressed all of the City of Novi criteria, and provided current proposed renderings and site plans for the project.

We would respectfully submit that the best argument in favor of granting this current abatement request is the past history and success of the prior abatement approvals relating to the project. While we are confident that the positive economic and very unique circumstances of a completely privately funded convention center operating within Novi's borders speaks for itself, we have also attached the initial Executive Summary and updated economic impact estimate submitted with our prior abatement request for your review and information.

In conclusion, we look forward to continuing to expand upon this highly unique and successful private-public partnership. Building upon this incredibly strong foundation and continuing a very constructive relationship with the City, we will be able to take "our" Convention Center.

I look forward to working with you in the coming months.

Very truly yours,

BOCO Enterprises, Inc.

Blair M. Bowman

Member

## **Table of Contents**

- Tax Abatement Submittal Form & Application Criteria Responses
- Positive Economic Impact of the Suburban Collection Showplace
- 3. Application for Industrial Facilities Tax Exemption Certificate Form 1012
- 4. Renderings

# NOVI cityofnovi.org

#### Tax Abatement Submittal Form

The City of Novi asks that all firms requesting more information about tax abatements for their new or existing business fill out this form.

Please return completed form by mail to: Victor Cardenas 45175 W. Ten Mile Road Novi, MI 48375

or by email to: vcardenas@cityofnovi.ora

Name of firm requesting abatement: <u>BoCo Enterprises</u> , Inc.
Contact Person: Blair Bowman
Address: 46100 Grand River Ave. Novi, MI 48374
Phone: <u>2483485600</u> Email: <u>bbowman@suburbanshowplace.com</u>
Please answer the following questions as completely as possible.
1. How many acres does the project include? 4 +/- Ac., as part of a larger 55 Ac. parcel
2. How many new jobs would be brought to the City of Novi? See Attached
a. Average salary range of new hires?
Is this an expansion project of an existing business in Novi? Yes X No
project coming from within the State of Michigan?  Yes X  No
If you answered No, please indicate the origin state?
Is the headquarters on the site of the facility for which you are requesting abatement?
Yes <u>X</u> No

## PA-198 Tax Abatement -- Expansion of Existing Industrial Facility Suburban Collection Showplace (Convention Center as defined under the Act)

#### Statement as it Relates to City Goals:

In accordance with the City of Novi Tax Abatement goals, TBON, LLC's abatement application for the expansion of the Showplace provides for significant capital investment, a catalyst for other significant investment within the community, creates and retains a significant amount of employment opportunities, establishes and preserves major industrial and trade events within the community, expands and already existing high quality project within the community and otherwise promotes and provides for the expansion for the city's tax base. Please see attached preliminary renderings and site plans.

#### **Application Criteria**

- A. A project must not have started more than 6 months before an application for abatement was received by the City, and be located in a plant rehabilitation district or industrial development district established prior to the commencement of the project
  - The project has not started, however, preliminary steps have been taken to ensure the project's feasibility. Plans, designs, and economic forecasts—all of which assume the granting of this Tax Abatement Application—have been completed. No additional property has been purchased or prepared, as the property to be used for the project is already currently owned by Applicant. The project satisfies all requirements that it be located in a prior existing plant rehabilitation district or industrial development district. The project will be located within the current EXO District, adjacent and connected to the existing Suburban Collection Showplace facility located at 46100 Grand River Avenue.
- B. There must be no outstanding taxes owed by the applicant or entity on the project.
  - Neither the applicant nor the project entity have outstanding taxes.
- C. If the facility is leased, the number of years awarded will not exceed the length of the lease
  - The maximum number of years possible under the tax abatement will not exceed the length of the lease arrangement of the facility
- D. There is no pending or current litigation, including but not limited to property tax appeals, against the city by the applicant or its agents
  - Neither Applicant nor its Agents are engaged in any current litigation with the City.
- E. Tax incentives will only be offered for the current phase of a project
  - The proposed project is new construction of a unique addition to the Showplace Facility (convention center). The new facility will be utilized by new events as well as current users existing facility who will likely locate outside the state of Michigan without this project.
- F. The project must be fiscally beneficial to Novi from a tax revenue standpoint and must have the potential to increase employment opportunities for citizens of the community.
  - The greatest argument for granting this current tax abatement is looking at the past results from prior abatements provided for the project. Even as abated, the initial development of the Showplace has delivered literally millions of dollars' worth of net

additional tax revenue to the city and other taxing jurisdictions. When compared to the fact that these properties would likely have remained vacant until today, generating in total low hundreds of thousands of dollars in tax revenue this modest level of support shows good fiscal responsibility. The project will provide new job opportunities within the community and will stimulate additional business development along the Grand River corridor. It is also important to recognize that the project is being proposed because of demands from several of the large trade & industry shows that currently occupy the facility. These shows are in a position to expand and without completion of the project will take their events to other larger facilities in the region which are subsidized by their local municipalities. In the case of our largest and fastest growing events (i.e. Battery Show) they will likely locate outside of the state without the expansion.

- G. The company must demonstrate it would not locate or expand in the City if tax abatement was not available.
  - Without this tax abatement, Applicant will not proceed with its expansion plans. As a result, key industrial and trade events held at the Facility will likely locate outside the state of Michigan.
- H. The cost disparity between expanding or locating within Novi and alternative locations outside the community must be demonstrated by the applicant
  - Exposition and Conference centers are unique in that most facilities are partially—or
    fully—subsidized by the taxpayers within their community and the cost of an expansion
    or construction of this type of facility in other communities is generally passed on to the
    taxpayers of the community. In contrast, Applicant is a private facility who is responsible
    for the complete cost of constructing this new project. Thus, the cost disparity of
    expanding within Novi, when compared to other communities, is extreme.
- I. The long term impact of the project on Novi's economy, particularly in both real and personal property
  - Please refer to the attached Economic Impact Analysis of The Novi Expo Center, and the Economic Report from Morris, Kalish & Walgren as support for the project's impact upon Novi's economy.
- J. The contributions the business has made to communities where it is currently located (i.e., are they a good neighbor, do they get involved in civic activities).
  - Applicant and its employees are extremely involved in the Novi community. Applicant hosts numerous civic meetings and events, is involved with and donates to local charitable organizations, and is host to many charitable and community-focused events. Most notably, Applicant hosts the Fifth Third Bank Michigan State Fair. Please find a copy of the Fair's Annual Report for your viewing, in which the organization's charitable giving is fully outlined. Some highlights include providing scholarships to youth participants in the fair, the annual "V.I.P." Charity night at the Fairgrounds, where local charities, sponsors, and veterans can attend the Fair for free, and hundreds of thousands of dollars donated to charitable organizations. As the Fifth Third Bank Michigan State Fair continues to expand at Applicant's facility, the Fairgrounds will be used for recreational community sporting events and activities when not in active use for the Fair and Facility.

- K. Diversification of the tax base that will have the effect of developing both real and personal property to Novi's tax base
  - Please refer to Applicant's answer to Application Criteria "I," which refers to the *Economic Impact Analysis of The Novi Expo Center*, and the updated Economic Report from Morris, Kalish & Walgren. From these sources, it is clear that the project will sufficiently diversify and develop real and personal property growth within Novi's tax base.
- L. The development will provide enhanced opportunities for the existing business community
  - Please refer to Applicant's answer to Application Criteria "I," the Economic Impact
     Analysis of The Novi Expo Center, and the updated Economic Report from Morris, Kalish
     & Walgren. The further development of the Exposition and Conference facility will
     provide enhanced opportunities for the existing business community.
- M. Evidence of corporate ongoing profitability, viability and vitality must be demonstrated, such as net profit, by percentage, and in real dollars for the last three corporate fiscal years.
  - The Applicant is a privately-owned entity and is thus not ordinarily under an obligation to make public its financial reports. We respectfully submit that the City of Novi has the best evidence of our ongoing corporate profitability in that we have been a growing and viable business entity within the community for more than two decades.
- N. Applicants are to provide a fiscal impact analysis that demonstrates the positive impacts to the community and where the benefits outweigh the abated amount in taxes for the duration of the abatement
  - Please refer to the attached documents referred to in Application Criteria "I."
- O. Any approved tax abatements will undergo a yearly compliance review
  - The Applicant welcomes any and all of such reviews.
- P. The applicant must be committed to the community for the entire term of the tax abatement and into the future. Evidence of this involvement will need to occur once abatement is awarded to applicant.
  - Applicant is fully committed to the community of Novi and has been since its inception. Beginning as the Novi Expo Center, the Applicant built a successful business from the ground up—all within the City of Novi. When the time came for the business to expand, the Applicant chose to remain within Novi and eventually relocated one (1) miles west of its original facility. The Applicant further committed to Novi by expanding and diversifying its operations to include additional meeting space and a Hyatt Place Hotel. All told, The Suburban Collection Showplace has been a mainstay within Novi for nearly a quarter of a century. The Applicant sincerely wishes to commit to the city once again with the construction of this project.
- Q. The granting of the industrial facilities exemption certificate, considered together with the aggregate amount of industrial facilitates exemption certificates previously granted and currently in force shall not have the effect of substantially impeding the operation of the city
  - The Applicant avers that the City possesses the most complete knowledge of facts and circumstances to determine whether the City's operation would be substantially impeded by an additional Industrial Facilities Exemption Certificate. However, Applicant would like again to draw attention to the fact that both the PA 210 Tax Abatement upon the Hyatt Place Hotel and Diamond Center meeting space expansions and the PA 198

Tax Abatement upon the original Suburban Collection Showplace Facility will soon expire. In the Applicant's view, the additional tax revenues from these expiring abatements and the increased tax revenues from the expected developments surrounding the project will provide adequate support for the tax abatement sought in this application.

# Positive Economic Impact Suburban Collection Showplace

For your consideration, we have attached the Executive Summary from the original economic study and the 2008 update showing an excess of \$600,000,000 per year in overall economic spinoff. The Showplace activities have exceeded those amounts used for these projections and a conservative estimate of an additional 20% increase in economic spinoff activity will result from the expansion when in full operation. It is worth noting, as we have previously pointed out, that the multiplier used by the professionals when deriving this economic impact estimate is a very conservative 2x.

April 7, 2016
PA-198 Application
Boco Enterprises, Inc.
Suburban Collection Showplace
Expansion

KEITH J. KALISH, C.P.A THOMAS M. COLLIDS, C.P.A JEFFREY A. HARTZEL, C.P.A. MICHAEL A. HUSBY, E.A.

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Suite 200
Soltheredd, Michigan 48033-6281
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Jon A. Walgren, C.P.A., Gr. Course.

# REVIEW AND UPDATE OF ECONOMIC IMPACT ANALYSIS ROCK FINANCIAL SHOWPLACE July 25, 2008

We have been the accounting firm utilized by Mr. Blair Bowman and his related entities for over ten years. Mr. Bowman requested we review the economic impact analysis prepared by Michigan Consultants prior to the opening of the Rock Financial Showplace and extrapolate using current operational data.

Michigan Consultants conducted an Economic Impact Analysis of the former Novi Expo Center facility as well as an anticipated direct economic impact from the then to be constructed "new facility" now known as the Rock Financial Showplace which included the following activities:

- Survey event promoters.
- Review event information.
- Analyze the state and national figures on spending by trade and consumer show attendees and exhibitors.
- Analyze tourism spending data.
- Review impact studies performed at other venues.
- Discussions and interviews with various commercial outlets near the facility.

Michigan Consultants identified usage figures derived from hosted event information and then utilized those figures to calculate direct economic impact in the following categories:

- Offsite spending by individuals.
- Local business spending by promoters and exhibitors.
- Local exhibitor "retained revenues" (product purchase dollars captured locally)
- NEC Expenditures.

Further on in the report Michigan Consultants identified an estimate of annual economic impact from the new expo center (Rock Financial Showplace) by combining the existing event impact with "new conventions or conferences". Once the overall economic impact was derived Michigan Consultants applied a multiplier factor of two (2). In the reviewer's opinion this was a conservative multiplier factor with many economic impact studies utilizing four to five times multiplier. It is with this lateral calculation that our review and update will deal with in substance. In short, we understand because of the uncertainty as to what new events were going to be generated in the new facility that it was difficult to project. However, one needs only to review the event master, a copy of which is contained herein, to see the extensive amount of new activity and impact that is being generated at the Rock Financial Showplace

In performing this update we reviewed the above utilized methodology by Michigan Consultants and found the assumptions and figures to be basically sound as far as visitor days and expenditure data. We also examined the former Novi Expo Center Event Promoter list utilized by Michigan Consultants against the Event Master for the current event roster at the Rock Financial Showplace. It was determined that almost all of the events then being produced at the former Novi Expo Center are currently being produced or similar events to them at the Rock Financial Showplace. In addition, there are multiple additional major events as well as literally hundreds of additional conference, convention and meeting activities held at the new facility. We have adopted the procedure of utilizing the Michigan Consultants study as a base from which to work and applied an additional multiplier for the new facility for the actual activity being two (2) times that which was projected by the original study. The validity of this multiplier was further supported by information received from the box office management and the conference and banquet center marketing manager at the existing Rock Financial Showplace. Utilizing this similar methodology, total visitor days would be in excess of 1,750,000 and individual exhibits were estimated to be in excess of 25,000. These figures when injected into the Michigan Consultants impact model would yield an amount of impact well in excess of our two (2) times multiplier.

Finally, a calculation was performed to express the economic impact in terms of current year dollar values applying a traditional CPI increase analysis. The table below is a modification and expansion of Table C as contained in the original Executive Summary of the Michigan Consultants Economic Impact Study and provides for a calculation of the updated economic impact for the existing Rock Financial Showplace of \$675, 916,000.

	TABLE C'		
ANNUAL ECONOR	MIC IMPACTS FOR THE	= );=(x)	
	EXPO CENTER	- 11-11	
DIRECT IMPACTS			
New conventions or conferences	\$ 12,570,000		
Present categories of events (including incremental gains)	\$117,414,606		
DIRECT SUB-TOTAL		\$	129,984,000
MULTIPLIER			2.0
AREA OF ECONOMIC IMPACT ATTRIBUTABLE TO THE NEW FACILITY (as previously projected)		4	259,968,000
MULTIPLIER (additional)			2.0
CTUAL AMOUNT OF EVENTS AND EXPENDITURES EXPERIENCED IN THE ROCK FINANCIAL SHOWPLACE		Ş	519,936,000

June 2008 CPI - October 1999 CPI 218.815 - 168.2 1.30

S519,936,000 x 1.30 = \$675.916,800.00 2008 Dollars

In conclusion, we believe that this extrapolation process is yielding a reasonable impact figure. As mentioned throughout the Michigan Consultant report it is worthy of emphasis that this is a major amount of economic impact derived uniquely through a privately funded operation in an environment which is almost solely and exclusively occupied by fully government subsidized operation.

It is also worth noting that this economic impact analysis does not take into consideration the economic impact from the onsite hotel planned to be constructed on the grounds of the Rock Financial Showplace. The planned hotel project will have a positive economic impact from a construction cost impact, job creation impact and tax revenue impact.

Morris, Kakih + Walgren P.C. MORRIS, KALISH + WALGREN, P.C. October 18, 1999

# ECONOMIC IMPACT ANALYSIS OF THE NOVI EXPO CENTER

Prepared by:

MICHIGAN CONSULTANTS 426 W. OTTAWA LANSING, MICHIGAN 48933 517-482-0790

Jacob Miklojcik, President

#### MISSION OF PROJECT

The Novi Expo Center (NEC) has been in operation for over seven years. Hundreds of thousands of individuals are attracted to Novi annually to attend the various trade shows, consumer shows, civic events, conferences, and other functions that utilize the center. The NEC is unique in that it is the only convention/expo center of substantial size in Michigan that is privately owned and operated.

This report identifies and enumerates the economic activity and impacts generated by the existing NEC. These figures exhibit what the NEC means to the area and the loss that would occur if the facility no longer existed within Novi. The analysis also provides projections for the additional benefits that would be generated from a new facility. The consultants undertook a variety of tasks in order to generate well-founded impact

- Survey of event promoters.
- Review of event information in NEC archives.
- Analysis of state and national figures on spending by trade and consumer show attendees and exhibitors.
- Analysis of tourism spending data.
- Review of impact studies performed at other venues.
- Discussions with various commercial outlets near the center.

#### **USAGE FIGURES**

During a recent 12-month period, the NEC hosted 68 major events, most being several days in length. The trade shows drew attendees from selected target groups while the consumer shows and civic events drew from the public at large. The center also hosted numerous small, non-published, events. In that the NEC itself typically does not serve as an event promoter, exact historic records on attendees and exhibitors are not available. In order to develop the usage figures NEC data was supplemented by a survey of promoters and national surveys. The results are summarized in Table A.

TABLE, TOTAL VISITOR ESTIMATES F	A OR 12 MONTH PERIOD
Visitor days	769,854
Individual exhibits	11,697
Room nights	68,539

#### **ECONOMIC IMPACTS**

The visitors spend money off-site on such things as hotels, restaurants, and retail items. The exhibitors and promoters also spend dollars off-site for goods and services that aid with making the event a success. The consumer shows also attract people from throughout southeastern Michigan, the Midwest, and Canada to purchase goods at the events, many from local firms and vendors. The NEC also has a substantial budget, with the dollars flowing to the local economy.

These various expenditures result in economic impacts for the Novi area, Oakland County and Southeastern Michigan. Table B exhibits the total direct impacts.

CANCEL CONTROL OF THE	The state of the s	
TABLE B ANNUAL DIRECT IMPACT TOTALS FOR THE NOVI EXPO CENTER		
OFF-SITE SPENDING BY INDIVIDUALS	\$34,533,190	
LOCAL BUSINESS SPENDING BY PROMOTERS AND EXHIBITORS	\$6,025,100	
LOCAL EXHIBITOR "RETAINED REVENUES" (product purchase dollars captured locally)	\$47,353,075	
NEC EXPENDITURES	\$7,000,000	
TOTAL DIRECT IMPACTS	\$94,911,365	

The full report delineates the manner in which care was taken to differentiate those dollars that were new to the geographic area or were retained in the area from dollars that simply passed through or that represent only a temporary shift. The report also identifies how the expenditure and impact factors utilized were more conservative than those used in similar studies for events and centers in other areas of the nation.

### GROSS IMPACT AFTER CONSIDERATION OF MULTIPLIER EFFECTS

The dollars expended ripple through the economy via successive rounds of spending The RIMS-2 model from the Bureau of Economic Analysis uses 2.075 as the multiplier for lodging and entertainment, 2.327 for eating and dinning, and 2.244 for retail. The consultants choose to use a more conservative multiplier of 2.0 for all expenditures.

Using this multiplier, the annual economic impact of the Novi Expo Center is calculated to be \$189,800,000 annually. Given the location of exhibitors, as well as the restaurants, hotels, and retail stores, it is reasonable to calculate that more than half this figure occurs in Oakland County--- approximately \$100,000,000 annually.

These are extremely impressive totals, particularly considering that the NEC opened less than a decade ago, operates in a retrofitted facility built for other purposes, and has not received any public subsidies.

#### INCREASED ECONOMIC IMPACTS AT A NEW FACILITY

The report notes the limitations of the existing facility and the improvements planned for the new Novi Expo Center. The new facility will increase economic impacts by being able to attract large-scale conferences and conventions that the present facility cannot accommodate, and by increasing the number of attendees and exhibitors at present events. It is stressed that the most important economic impact created by the new facility is retention of the present base of economic benefits.

Table C exhibits the key totals for the new facility. The annual economic impact of the new center is calculated to be over one-quarter of a billion dollars. This figure is arrived at through conservative assumptions, caution in avoiding double counting, and exclusion of economic activities that occur outside of the general geographic region.

ANNUAL-ECONOMIC I	BLE C IMPACTS FOR THE	NEW
DIRECT IMPACTS	PO CENTER	The state of the s
New conventions or conferences	\$12,570,000	
Present categories of events (including incremental gains)	\$117,414,000	
DIRECT SUB-TOTAL		\$129,984,000
MULTIPLIER	12.00	2.0
AREA ECONOMIC IMPACT ATTRIBUNEW FACILITY	JTABLE TO THE	\$259,988,000

At least 65% of the benefits are attributable to Oakland County, and a large portion is captured within Novi itself

#### EMPLOYMENT (on-going)

The direct spending displayed in Table B creates employment. The figures calculate to an estimated 1,582 full-time equivalent jobs. Additional positions are created by ripple effects in the economy.

The new center will assure that present employment created from present economic impacts is retained and additional employment occurs. The report calculates that 1,957 full-time equivalent jobs will be created/retained by the new facility. Ripple effect positions increase this total.

#### CONSTRUCTION IMPACTS

The construction of the new facility will also produce a direct economic benefit to the area. A reasonable new construction estimate is \$12,000,000, although detailed cost engineering has not been completed. The local spending by construction company employees and subcontractors will further expand the economic impacts gained from construction.

#### A COMPETITVE ENVIRONMENT

The final chapter of the report notes that the NEC operates in a competitive environment against heavily subsidized competition. A review of other centers in the Midwest with over 100,000 square feet of exposition space found only one other facility and Grand Rapids) receive large public subsidies. Grand Rapids recently received a direct state appropriation of \$60,000,000 and a County appropriation of \$15,000,000 to aid with their new facility.

#### Application for Industrial Facilities Tax Exemption Certificate

Issued under authority of Public Act 198 of 1974, as amended. Filing is mandatory.

INSTRUCTIONS: File the original and two copies of this form and the required attachments (three complete sets) with the clerk of the local government unit. The State Tax Commission (STC) requires two complete sets (one original and one copy). One copy is retained by the clerk. If you have any questions regarding the completion of this form, call (517) 373-3302.

To be completed by Clerk	of Local Government Unit	
Signature of Clerk	▶ Date Received by Local Unit	CONTRACTOR OF THE ATTRICTS OF THE ATTRICTS OF THE STATE O
STCU	se Only	
Application Number	Date Received by STC	
APPLICANT INFORMATION		
All boxes must be completed.		
<ul> <li>1a. Company Name (Applicant must be the occupant/operator of the facility)</li> <li>BoCo Enterprises, Inc.</li> </ul>	▶ 1b. Standard Industrial Classification (SIC) Co. 9015	ode - Sec. 2(10) (4 or 6 Digit Code)
▶ 1c. Facility Address (City, State, ZIP Code) (real and/or personal property location) See Attached Exhibit A	► 1d. City/Township/Village (indicate which) Novi	▶ 1e. County Oakland
▶ 2. Type of Approval Requested	▶ 3a. School District where facility is located	▶ 3b. School Code
New (Sec. 2(5))	Novi	63100
Speculative Building (Sec. 3(8)) Rehabilitation (Sec. 3(6))	4. Amount of years requested for exemption (1-1	
Research and Development (Sec. 2(10)) Increase/Amendment	12	
5. Per section 5, the application shall contain or be accompanied by a general descriptinature and extent of the restoration, replacement, or construction to be undertaken, a degree from its needed.	on of the facility and a general description of the plescriptive list of the equipment that will be part of	proposed use of the facility, the general the facility. Attach additional page(s) if
New construction of a 180,000 sq. ft. multi-purpose events f center in excess of 250,000 sq. ft.	acility attached to an existing conv	ention and conference
6a. Cost of land and building improvements (excluding cost of land)  * Attach list of improvements and associated costs.  * Also attach a copy of building permit if project has already begun.  6b. Cost of machinery, equipment, furniture and fixtures	R∈ N	
* Attach itemized listing with month, day and year of beginning of inst		ersonal Property Costs
6c. Total Project Costs  * Round Costs to Nearest Dollar		10 Million otal of Real & Personal Costs
7. Indicate the time schedule for start and finish of construction and equipment installation		
Begin Date (M/D/Y)	End Date (M/D/Y)  /1/2017	Leased Leased
▶ 8. Are State Education Taxes reduced or abated by the Michigan Economic Develop Commitment to receive this exemption. Yes No	pment Corporation (MEDC)? If yes, applicant mus	attach a signed MEDC Letter of
▶ 9. No. of existing jobs at this facility that will be retained as a result of this project. 250-300	▶ 10. No. of new jobs at this facility expected to 50	create within 2 years of completion.
11. Rehabilitation applications only: Complete a, b and c of this section. You must attac obsolescence statement for property. The Taxable Value (TV) data below must be as o	th the assessor's statement of SEV for the entire proceedings of the year prior to the rehabilitation	lant rehabilitation district and n.
a. TV of Real Property (excluding land)	·	
b. TV of Personal Property (excluding inventory)		
c. Total TV		
▶ 12a. Check the type of District the facility is located in:		
X Industrial Development District Plant Rehab	ilitation District	
▶ 12b. Date district was established by local government unit (contact local unit)	▶ 12c. Is this application for a speculative build  Yes No	ing (Sec. 3(8))?

#### APPLICANT CERTIFICATION - complete all boxes.

The undersigned, authorized officer of the company making this application certifies that, to the best of his/her knowledge, no information contained herein or in the attachments hereto is false in any way and that all are truly descriptive of the industrial property for which this application is being submitted.

It is further certified that the undersigned is familiar with the provisions of P.A. 198 of 1974, as amended, being Sections 207.551 to 207.572, inclusive, of the Michigan Compiled Laws; and to the best of his/her knowledge and belief, (s)he has complied or will be able to comply with all of the requirements thereof which are prerequisite to the approval of the application by the local unit of government and the issuance of an Industrial Facilities Exemption Certificate by the State Tax Commission.

13a. Preparer Name	3b. Telephone Number	13c. Fax Number	13d. E-mail Address
Blair Bowman	248-348-5600	248-347-7720	BBowman@SuburbanShowplace.com
14a. Name of Contact Person 1	4b. Telephone Number	14c. Fax Number	14d. E-mail Address
Blair Bowman	248-348-5600	248-347-7720	BBowman@SuburbanShowplace.com
▶ 15a. Name of Company Officer (No Author Blair Bowman	rized Agents)		
15b. Signature of Company Officer (No Autho	orized Agents)	15c. Fax Number	15d. Date
NIL		248-347-7720	
▶ 15e. Mailing Address (Street, City, State, Z	ZIP Code)	15f. Telephone Number	15g. E-mail Address
46100 Grand River Ave, Novi	i, MI, 48374	248-348-5600	BBowman@SuburbanShowplace.com

#### LOCAL GOVERNMENT ACTION & CERTIFICATION - complete all boxes.

This section must be completed by the clerk of the local governing unit before submitting application to the State Tax Commission. Check items on file at the Local Unit and those included with the submittal.

▶ 16. Action taken by local government unit	16b. The State Tax Commission Requires the following documents be filed for an administratively complete application:
Abatement Approved for Yrs Real (1-12),	
After Completion Yes No	1. Original Application plus attachments, and one complete copy
	2. Resolution establishing district
Denied (Include Resolution Denying)	3. Resolution approving denying application
10. 5	4. Letter of Agreement (Signed by local unit and applicant
16a. Documents Required to be on file with the Local Unit Check or Indicate N/A if Not Applicable	5 Affiday t of Fees Signed by local unit and additions
Notice to the public prior to hearing establishing	istrict. 6. Building Permit for real improvements if project has a ready degating.
2. Notice to taxing authorities of opportunity for a	ing. 7. Equipment List with dates of deginning of installation
3. List of taxing authorities notified for district and	lication action. 8. Form 3222 (if applicable
4. Lease Agreement showing applicants tax liabili	9. Speculative building resolution and affidavits of applicable
16c. LUCI Code	16d. School Code
17. Name of Local Government Body	▶ 18. Date of Resolution Approving/Denying this Application
Attached hereto is an original application and all docu unit for inspection at any time, and that any leases sh	nts listed in 16b. I also certify that all documents listed in 16a are on file at the local sufficient tax liability.
19a. Signature of Clerk 19b. N	of Clerk 19c. E-mail Address
19d. Clerk's Mailing Address (Street, City, State, ZIP Code)	
19e. Telephone Number	19f. Fax Number

State Tax Commission Rule Number 57: Complete applications approved by the local unit and received by the State Tax Commission by October 31 each year will be acted upon by December 31. Applications received after October 31 may be acted upon in the following year.

Local Unit: Mail one original and one copy of the completed application and all required attachments to:

Michigan Department of Treasury State Tax Commission PO Box 30471 Lansing, MI 48909

(For guaranteed receipt by the STC, it is recommended that applications are sent by certified mail.)

STC USE ONLY				
▶ LUCI Code	▶ Begin Date Real	▶ Begin Date Personal	▶ End Date Real	▶ End Date Personal

## Instruction for Completing Form 1012, Industrial Facilities Tax Exemption (IFT) Application

The completed original application form 1012 and all required attachments, MUST be filed with the clerk of the local unit of government where the facility is or will be located. Complete applications must be received by the State Tax Commission by October 31 to ensure processing and certification for the following tax year. Applications received after the October 31 deadline will be processed as expeditiously as possible.

Please note that attachments listed on the application in number 16a are to be retained by the local unit of government, and attachments listed in number 16b are to be included with the application when forwarding to the State Tax Commission (STC).

(Before commencement of a project the local unit of government must establish a district, or the applicant must request in writing a district be established, in order to qualify for an IFT abatement. Applications and attachments must be received by the local unit of government within six months of commencement of project.)

The following information is required on separate documents attached to form 1012 by the applicant and provided to the local unit of government (city, township or village). (Providing an accurate school district where the facility is located is vital.):

- 1. Legal description of the real property on which the facility is or will be located. Also provide property identification number if available.
- 2. Personal Property Requirements: Complete list of new machinery, equipment, furniture and fixtures which will be used in the facility. The list should include description, beginning date of installation or expected installation by month/day/year, and costs or expected costs (see sample). Detail listing of machinery and equipment must match amount shown on question 6b of the application. Personal property applications must have attached a certified statement/affidavit as proof of the beginning date of installation (see sample).
- 3. Real Property Requirements: Proof of date the construction started (groundbreaking). Applicant must include one of the following if the project has already begun; building permit, footings inspection report, or certified statement/affidavit from contractor indicating exact date of commencement.

4. Complete copy of lease agreement as executed, if applicable, verifying lessee (applicant) has direct ad valorem real and/or personal property tax liability. The applicant must have real and/or personal property tax liability to qualify for an IFT abatement on leased property. If applying for a real property tax exemption on leased property, the lease must run the full length of time the abatement is granted by the local unit of government. Tax liability for leased property should be determined before sending to the STC.

The following information is required of the local unit of government: [Please note that only items 2, 4, 5, 6, & 7 below are forwarded to the State Tax Commission with the application, along with items 2 & 3 from above. The original is required by the STC. The remaining items are to be retained at the local unit of government for future reference. (The local unit must verify that the school district listed on all IFT applications is correct.)

- 1. A copy of the notice to the general public and the certified notice to the property owners concerning the establishment of the district.
- 2. Certified copy of the resolution establishing the Industrial Development District (IDD) or Plant Rehabilitation District (PRD), which includes a legal description of the district (see sample). If the district was not established prior to the commencement of construction, the local unit shall include a certified copy or date stamped copy of the written request to establish the district.
- 3. Copy of the notice and the certified letters to the taxing authorities regarding the hearing to approve the application.
- 4. Certified copy of the resolution approving the application. The resolution must include the number of years the local unit is granting the abatement and the statement "the granting of the Industrial Facilities Exemption Certificate shall not have the effect of substantially impeding the operation of (governmental unit), or impairing the financial soundness of a taxing unit which levies ad valorem property taxes in (governmental unit see sample).

- 5. Letter of Agreement (signed by the local unit of government and the applicant per P.A. 334 of 1993 (see sample).
- 6. Affidavit of Fees (signed by the local unit of government and the applicant), (Bulletin 3, January 16, 1998). This statement may be incorporated into the Letter of Agreement (see sample).
- 7. Treasury Form 3222 (if applicable Fiscal Statement for Tax Abatement Request.

The following information is required for rehabilitation applications in addition to the above requirements:

- 1. A listing of existing machinery, equipment, furniture and fixtures which will be replaced or renovated. This listing should include description, beginning date of installation or expected installation by month/day/year, and costs or expected costs.
- 2. A rehabilitation application must include a statement from the Assessor showing the taxable valuation of the plant rehabilitation district, separately stated for real property (EXCLUDING LAND) and personal property. Attach a statement from the assessor indicating the obsolescence of the property being rehabilitated.

The following information is required for speculative building applications in addition to the above requirements:

- 1. A certified copy of the resolution to establish a speculative building.
- 2. A statement of non-occupancy from the owner and the assessor. Please refer to the following Web site for P.A. 198 of 1974:

Please refer to the following Web site for P.A. 198 of 1974: www.legislature.mi.gov/. For more information and Frequently Asked Questions, visit our Web site at www.michigan.gov/propertytaxexemptions.

For guaranteed receipt by the State Tax Commission, it is recommended that applications and attachments are sent by certified mail.

## Exhibit A: Legal Description of the Real Property on which the facility is or will be located, Property Identification # 22-16-251-023

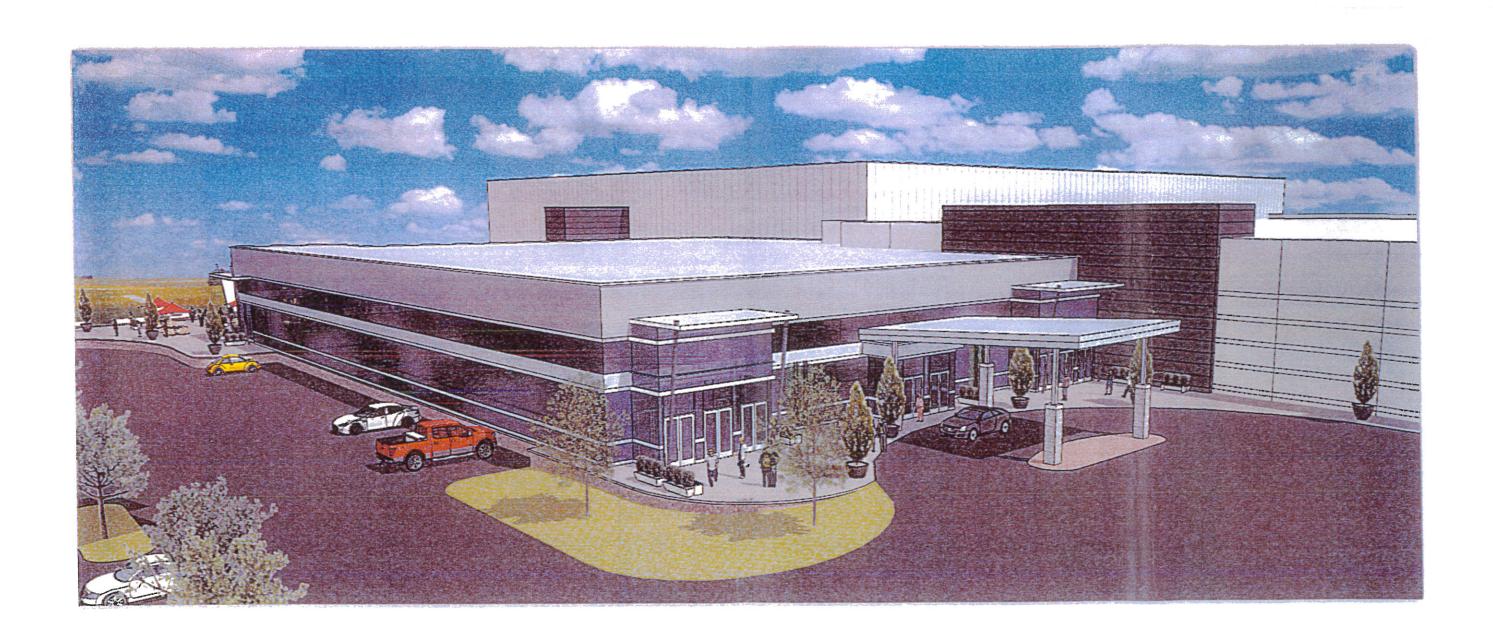
T1N, R8E, SEC 16 PART OF NE 1/4, ALSO PART OF SE 1/4 BEG AT E 1/4 COR, TH S 87-26-37 W 1339.12 FT, TH S 87-42-26 W 124.90 FT, TH S 01-24-20 E 347.64 FT, TH ALG CURVE TO RIGHT, RAD 83807.16 FT, CHORD BEARS N 73-03-46 W 328.67 FT, DIST OF 328.67 FT, TH N 72-57-29 W 755.69 FT, TH N 01-46-33 W 347.10 FT, TH N 73-01-11 W 109.66 FT, TH S 88-13-27 W 83.17 FT, TH N 01-46-33 W 900.29 FT, TH S 70-44-04 E 45.95 FT, TH S 34-37-33 E 20.66 FT, TH S 74-00-10 E 1693.39 FT, TH N 86-34-29 E 150.36 FT, TH S 74-00-10 E 901.58 FT, TH S 02-19-20 E 443.24 FT TO BEG 54.86 A 9-11-12 FR 021 & 022 Split/Combined on 09/18/2012 from 50-22-16-251-021, 50-22-16-251-022;

Exhibit B: Complete list of new machinery, equipment, furniture and fixtures which will be used in the facility.

N/A

Exhibit C: Proof of date the construction started (groundbreaking):

N/A







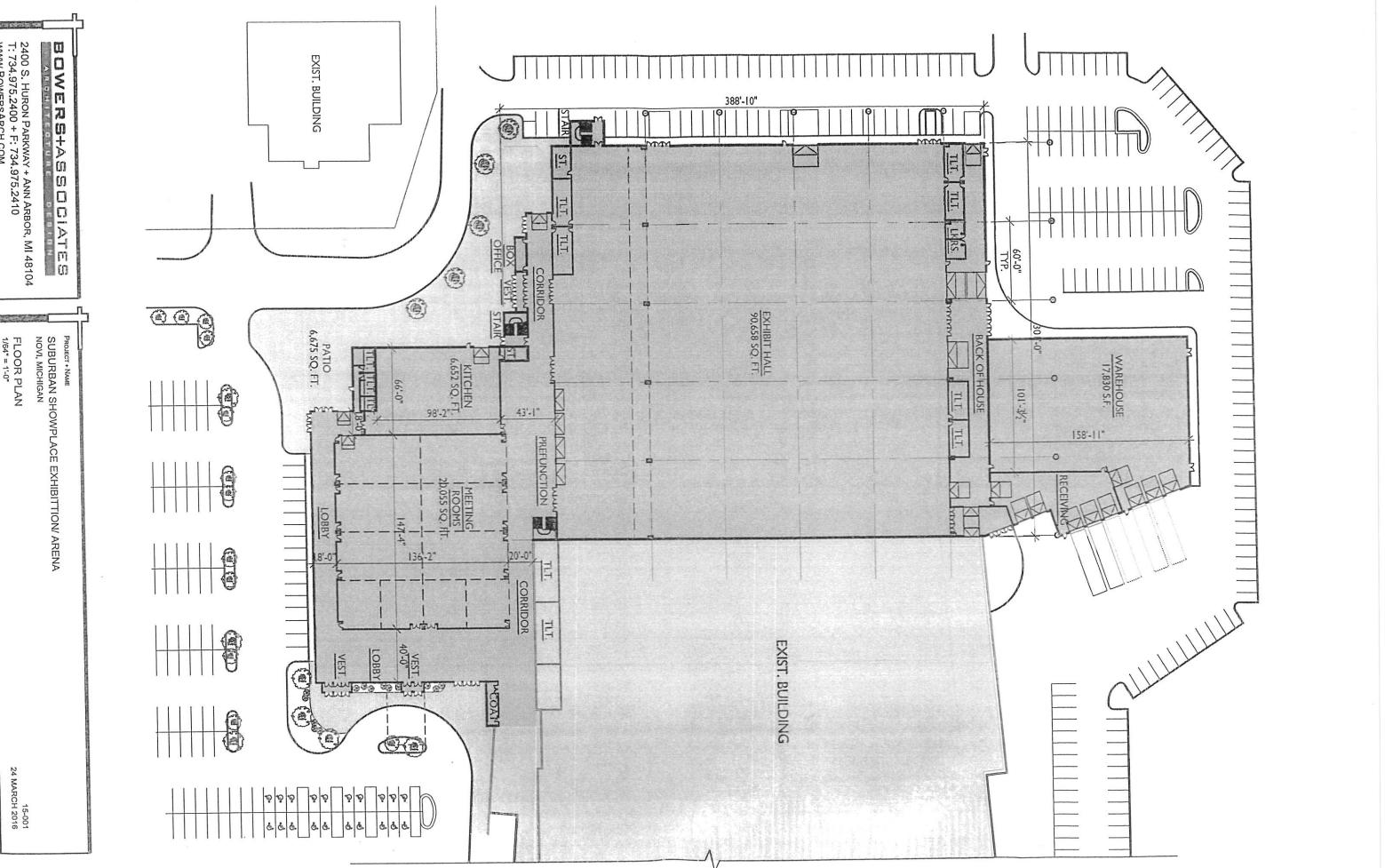












2400 S. HURON PARKWAY + ANN ARBOR, MI 48104 T: 734.975.2400 + F: 734.975.2410 www.BowersArch.com

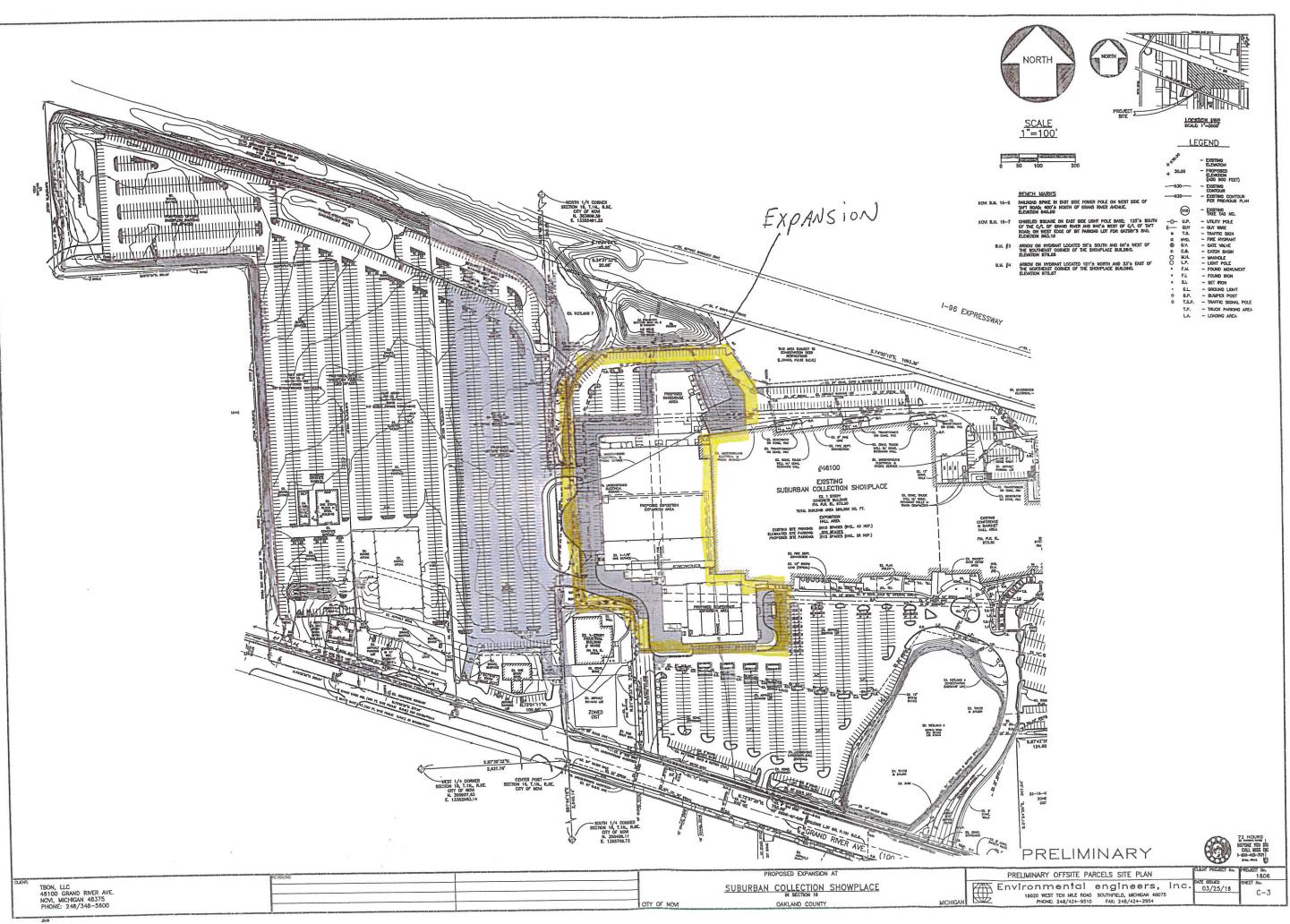
2400 S. HURON PARKWAY + ANN ARBOR, MI 48104 T: 734.975.2400 + F: 734.975.2410 www.BowersArch.com BOWERS+ASSOCIATES PROJECT + NAME
SUBURBAN SHOWPLACE EXHIBITTION/ ARENA
NOVI, MICHIGAN MEZZANINE PLAN 1/64" = 1'-0"

STAIR

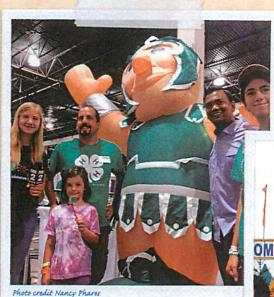
STORAGE MEZZANINE

STAIR

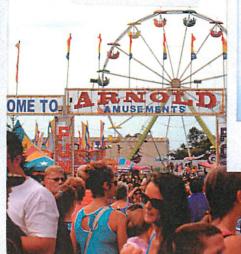
OPEN TO BELOW







#### VALUE FOR STRONG FOUNDATION





#### VALUE THROUGH PARTNERSHIP

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#### **CONTACT US:**

248.348.6942

info@MichiganStateFairLLC.com



Photo credit Diane Snyder

#### VALUE THROUGH PEOPLE



Photo credit Louis Waldock

RESERVE

#### VALUE THROUGH AGRICULTURE



Photo credit IANE PURSLOW

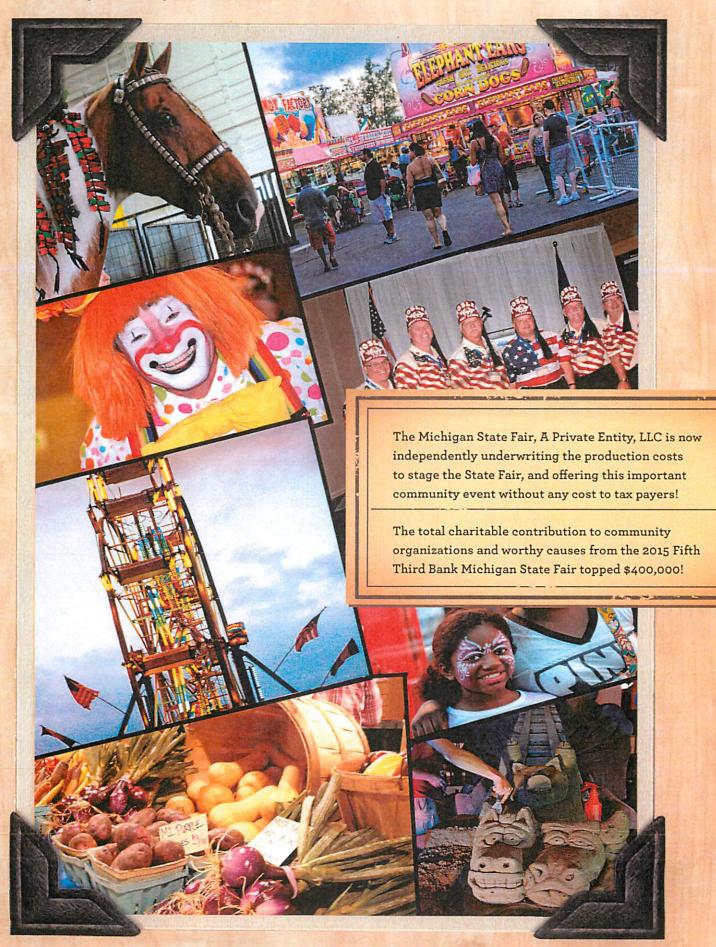
#### **OUR MISSION**

The mission of the Michigan State
Fair, LLC is to engage our State's
Residents and Businesses to
promote and celebrate the positive
achievements and advancements
in Michigan Rural and Urban
Agricultural, Business, and Industry.
It is furthermore the goal of this
organization to:

Reimagine the State Fair business model for the new millennium, weaving beloved traditions together with modern technology and experiences relevant for today's attendees, vendors, and exhibitors while maintaining superior levels of customer service

- Exceed Fairgoers expectations, by providing and maintaining a professional, clean, safe and fun atmosphere and experience that delivers on our position as Michigan's #1 Family Event
- Reinforce, build, and maintain relationships with Michigan Agriculture, Business, Tourism and Industry for the mutual benefit of the State Fair, State's Residents and the Business Community
- Recognize and celebrate youth participating in both
  Rural and Urban Agriculture development, who
  offer knowledge and leadership skills, in and out of
  the class room
- Be a bright light, central gathering place and a force of good for Michigan Residents, Businesses, Organizations, and Communities through communication, networking, introductions, facilitation and charitable giving

#### Mission / Vision / Core Values



#### MESSAGE FROM THE MANAGER BLAIR BOWMAN, OWNER. SUBURBAN COLLECTION SHOWPLACE AND THE MICHIGAN STATE FAIR, A PRIVATE ENTITY. LLC:

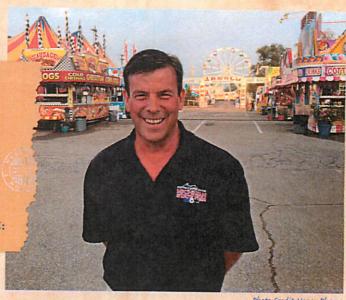


Photo Credit Nancy Phares

I am delighted to share that 2015 marked an enormous turning point and forward leap for the growth and evolution of the Fifth Third Bank Michigan State Fair. We welcomed several important new sponsors and partners, Ram Truck, Blue Care Network, American Honda, and strengthened our already wonderful collaborative relationships with the founding partners, Bright House Networks, the Detroit Shriners. C.F Burger Creamery, Kroger of Michigan, and Guernsey Farms Dairy and of course our title sponsor Fifth Third Bank. These dedicated organizations, along with the State Fair Steering Committee, who now number more than 100 hardworking individuals, have helped to shape our grand vision for a privately funded Michigan State Fair, LLC, the first of it's kind in North America. This year, as a team, we could feel the momentum building as our work began to truly capture the imagination of the statewide agriculture, business and education communities, around what the future can offer for the Fifth Third Bank Michigan State Fair, and all of the constituencies it serves. In this spirit, I am extraordinarily pleased to report

that the Michigan State Fair, LLC is returning well over \$400,000 to Southeast Michigan charitable and community organizations this fall.

Following the tremendous expansion of the State Fairgrounds in 2015, including the addition of new horse arenas, barns and shows, plus larger Midway and Shrine Circus areas, we will settle in to polish and fine tune all the Fair attractions for 2016. All of this will be in preparation for larger scale projects and infrastructure improvements at the Suburban Collection Showplace and Michigan State Fairgrounds that are on the horizon.

For me personally, it has been a time of great joy and pride as I have watched this new State Fair business model hit its stride. and clearly demonstrate that the business of Michigan Agriculture is on a fast track to continued success for the great benefit of us all.

#### Blair Bowman

Proprietor, Suburban Collection Showplace and The Michigan State Fair, A Private Entity, LLC



Photo credit Nancy Phares

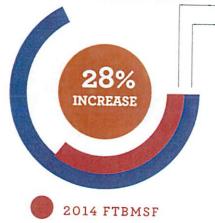
Novi Mayor Bob Gatt and Blair Bowman

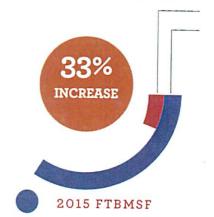


### SUCCESS BY THE NUMBERS

COMMERCIAL VENDORS

CHARITABLE CONTRIBUTIONS





IN 2015: 33% INCREASE IN NUMBER OF SPONSORS

compared to 2014 State Fair

#### SCHOLARSHIPS

NEWLY ESTABLISHED IN 2013 WITH AN INCREASE FROM \$30,000 TO \$40,000 in 2015

\$20,000 \*\$20,000

YOUTH URBAN AGRICULTURE SCHOLARSHIPS

YOUTH GOLD RIBBON AND LIVESTOCK SCHOLARSHIPS

\$40,000

\$20,000

2013

\$30,000 **2014** 

2015



INCREASE IN NUMBER OF

#### VOLUNTEERS compared to 2014 Fair Event



2015 RIBBON CUTTING Photo credit Janet M Hug

INCREASE IN NUMBER OF

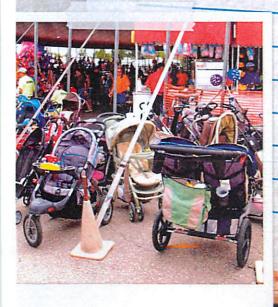
Agricultural/Home Arts Participation

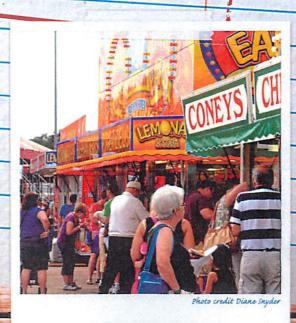
INCREASE IN NUMBER OF

Livestock Exhibits

compared to 2014 Fair Event

Compared to 2014 Fair Event





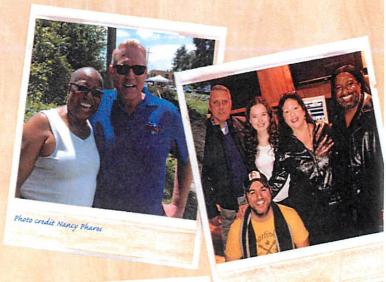
## MESSAGE FROM THE DIRECTOR

MESSAGE FROM STEVE MASTERS

What a surreal journey it has been, since I moved from the Upper Peninsula about a year and a half ago to take the helm as the first Executive Director of the Fifth Third Bank Michigan State Fair. My transition from the Upper Peninsula of Michigan continues to be enormously educational, fun, rewarding, and occasionally hilarious---as I continue to navigate all the commonalities and contrasts between the two Peninsulas. What I can say, with certainty, is that although there are geographic and cultural, differences our State is chock full of incredibly dedicated, passionate, and generous people who support this mission of reinventing the tradition of an annual Michigan State Fair. I am still amazed by the rich abundance our magnificent state has to offer those who reside here, north and south. I am honored, as well as challenged, by the responsibility to re-kindle this beloved, grand old event for all Michiganders to truly celebrate Michigan, as we move toward the future.

We have just begun our journey on this long path, and there is an enormous amount of work yet to do. But, make no mistake, we made enormous strides in this third annual presentation of the Fifth Third Bank Michigan State Fair. Broad and significant increases in participation from livestock breeders and Home Art enthusiasts, increases in membership of the Steering Committee, plus the invaluable addition of dedicated new partners involved in Urban and Rural Agriculture, as well as sponsors who share the vision of what this new, 21st century Michigan State Fair, A Private Entity, LLC can be, moving forward. There is also an increased community understanding of the mission of this new version of The Michigan State Fair, to preserve the best and most favorite traditions of the original State Fair, create new modern relevant traditions, while streamlining the Fair model and creating a future vision for the role we play in the broader community. In the years to come it is our goal to continue to build on our early successes and be a beacon and central gathering place for future progress and sharing of accumulated wisdom, while building bridges between the people, communities, businesses, and industries of our great State as we celebrate all the wonderful elements that make us Pure Michigan!







## HE DETROIT SHRIN

140 YEARS OF FELLOWSHIP, 90 YEARS OF CHANGING LIVES - SHRINER'S, WITH LOVE TO THE RESCUE

The Detroit Shriners are deeply proud to be a foundation partner of the Fifth Third Bank Michigan State Fair. The process of rebuilding this grand old Michigan tradition has been a great labor of love for our entire organization over the course of these past several years. Key members of the Shriners are delighted to serve on the Executive Committee of the State Fair, responsible for the oversight, direction and operation of the State Fair. We gladly offer the deep resources and great humanitarian network of the Shriners Michigan Organization, along with so many other community leaders, towards this wonderful collaborative effort. We share the great pride of all who are involved in expanding and improving the Michigan State Fair each and every year, to provide a terrific family fun atmosphere and a great value to attendees. Once again in 2015, it was our privilege to invite young Shrine hospital patients and their families, veterans, active military member and families to attend the Charity Preview evening as our guests. It is also with great pride the Shrine continues to be an underwriting sponsor of the State Fair Urban and Rural Scholarship programs, contributing \$7,000 in scholarship funds to assist Michigan youth in attaining their educational goals, and the Shrine was also a contributor to the City of Novi general fund, as part of the Executive

#### Who are the Detroit Shriners?

Board donation to city programs.

The Shrine is a fraternity of 3,000 local members dedicated to helping kids through the international network of Shriner's Hospitals for children. This venerable organization attracts physicians, lawyers, truck

drivers, dentists, contractors, plus heads of state, movie stars, generals. clergymen and accountants. The first, humorous answer to the query of who the Shriners are, might be "Those guys who have the parades with the wild costumes and funny little cars." Another first thought might be of circuses and clowns... who wear those funny hats - like flowerpots - and have those big conventions." Past the levity, at a deeper and truer level, many have come to understand and have first hand knowledge of the great, strong network of support the Shriners offer to those in need. " My little girl was born with clubfeet...now they are straight, and she can walk, thanks to Shriners Hospitals for Children." Would be one example, and another "the Shriners run those fantastic, leading edge burn treatment hospitals... there are so many stories about their doctors treating kids with burns over 90 percent of their bodies." All these various and complex views are correct. Each observer has experienced an individual facet of the Shrine Organization. At the core of it all is the camaraderie, deep friendships, good fellowship and great times shared by all Shriners. All Shriners share a grand Masonic heritage: Each is a Master Mason in the Freemasonry Fraternity. There are approximately 400,000 Shriners now, across the globe. They gather in temples, or chapters, throughout the United States, Canada, Mexico and the Republic of Panama. There are 22 Shriners Hospitals for Children providing care for

orthopedic conditions, burns, spinal cord injuries, and cleft lip and



Photo Credit Don Kincheloe

palate. These hospitals have helped over 835,000 children - at no cost to parent or child - since the first Shriners Hospital opened in 1922. Our Detroit Shriners directly support hospitals in Erie, PA, Chicago and Cincinnati. We provide transportation weekly for young Detroit area patients and their families to each of these hospitals. The funds raised through events like the Fifth Third Bank Michigan State Fair helps provide resources to our Temple that enable us to carry out our mission of helping children overcome terrible and disabling injuries and deformities, allowing them to lead productive lives. It is with great pride and pleasure that we continue to be part of this tremendous annual family event at Suburban Collection Showplace. We, along with all the Executive and Steering Committee members that help guide the State Fair, strive to provide a superb event experience for the entire family to enjoy, while providing needed support to our local communities. We look very forward to the future, watching the Michigan State Fair, A Private Entity, LLC, grow and thrive, for future generations to enjoy. while supporting our local communities. It is our mission to see this Fair thrive and grow for future generations to enjoy.

CRAIG STIGELMAN Detroit Shrine Circus Chairman



Shrine Circus Presented by:

#### **OUR STEERING COMMITTEE**

CHUCK ALKAZIAN Superstar Mentor

JOHN ALMSTADT Economic Development Dept. of Oakland County

> DEAN ANGOTT C.F Burger Creamery

MICHAEL ANTARAN Carrotpass

TOM ARNOLD
Arnold Amusements

PETE AUGER City of Novi, City Manager

> ANDREA AYRES Make-A-Wish

DR. MIKE BALON Studio B

KATE BARBER Epoch Hospitality Group

BRANDON BARROW Kroger

JIM BETTS Urban Youth Scholarship Program

SUE BILA
Michigan Festival and Events
Association

TRACIE BOCK Experience Six

CHERIE BOTIGULA Volunteer

MCKENZIE BOWMAN Epoch Hospitality Group

BLAIR BOWMAN Suburban Collection Showplace

BLAIR, JR. BOWMAN Suburban Collection Showplace

KIMBERLE BOWMAN
The Michigan State Fair, A Private
Entity, LLC

BARBARA BOWMAN
The Michigan State Fair, A Private
Entity, LLC

BILL, SR. BOWMAN Thompson-Brown Company

LEIGH BYRD Bright House Networks

KIM & JODI CAPELLO Volunteer NIKITA CARGINS Suburban Collection Showplace

> DEB CHAPMAN Chapman Sheep Farm Fair Book

MARK CHAPMAN Chapman Sheep Farm Sheep Superintendent

KELLIE CISLO St. John Providence Park Hospital

SHELBY COLLINS
Suburban Collection Showplace

LINDA COON Goat Superintendent

REPRESENTATIVE KATHY
CRAWFORD
Michigan House of Representatives

HUGH D. CRAWFORD Oakland County Commissioner

> BOB CUMMINGS Fair Historian

ARLENE DEFOREST
Hands on Milking Cow Simulator
Chairperson

CARRIE DELONG
Dairy Superintendent

SANDY DOREY Senior Day

KELLY EBERLY Epoch Hospitality Group

> RON ELISON Beginning of Life

JULIE FARKAS City of Novi Library Board

TERRY FIELDS
Oakland County Parks & Rec., Chief
of Recreation Programs & Services

ELISA FIXLER Studio B

TONY FONTAN Epoch Hospitality Group

LAURA FRANZECA Guernsey Farms Dairy

ALEXIS FRYATT Suburban Collection Showplace

> MAYOR BOB GATT Mayor City of Novi

JAMES (JIM) GOTTS Shriner Circus JOHN HANEY Oakland County Parks & Rec.,

MICHAEL F. HARRIS
Paralyzed Veterans of America

MARSHA HARWOOD Home Arts Superintendent

JERRY ANN HEBRON Oakland Avenue Farmers Market Urban Agriculture

ASHLEY HECKSEL Suburban Collection Showplace

> PAUL HESS Epoch Hospitality Group

DEB HOLMES Livingston County Farm Bureau

> JESSICA ILOFF Blue Care Network

ALAN JAROS MSU Extension - Tollgate Farm And Education Center

RUTH ANN JIRASEK LEGISLATIVE Director to Kathy Crawford

> STEVE KARAKULA Art Craft

MARKUS KELLY Mackinaw Island Travel Bureau

> JOE KISH Shrine Circus

TOM KLINK Beef Superintendent

KRISTINE KONESCO Poultry Superintendent

SENATOR MIKE KOWALL MICHIGAN Senate

ALEXIS LAWRENCE Farmer's Market Manager / Michigan Farm to School

KEVIN LAWRENCE Farmer's Market Manager / Michigan Farm to School

ASHLEY MANN
Suburban Collection Showplace

STEVE MASTERS Fifth Third Bank Michigan State Fair

APRIL MAUNU Suburban Collection Showplace

> BOB MCCANN Bright House Networks

KEN MCCLURE Kroger

MARTY MCGUIRE Guernsey Farms Dairy

JACKIE MCMAHON
Suburban Collection Showplace

AL MILLER Shrine Circus

JOHN MINNIS Volunteer

JUDY MOORE Home Arts/ Agriculture Director

> MIKE MURRAY Carrotpass

MARY JANE NOWAK Fifth Third Bank

LYNN O'BRIEN
Director of District Affairs for
Senator Kowall

TERRI O'BRIEN
Street Marketing (Suburban
Collection Marketing Rep.)

TOM O'CALLAGHAN
Anheuser Busch (Hubert
Distributors)

J.NADIR OMOWALE Superstar Mentor

COLLEEN ORTMAN Guernsey Farms Dairy

GLEN & PAT PERKINS Volunteer

> SHARI PETERS Volunteer

NANCY PHARES Media Alchemy, LLC PAIGE PHILLIPS
Suburban Collection Showplace

WILLIS AND CHRIS PLANK Rabbit Superintendent

ROB REID
Agriculture, Livestock Committee
Member

LISA REIFF Michigan Association of Fairs & Exhibitions

> SARAH RESSLER Horse Superintendent

KRISSY RESSLER
Assistant Horse Superintendent

JACK RILEY Fifth Third Bank

KENT ROBERTS
Urban Youth Agriculture Scholarship
Program Director

LAURA ROCHOW Suburban Collection Showplace

MAV (DR.) SANGHVI
Providence Hospital/Rotary/City of
Novi ZBA

DEB SCHMUCKER
Center for Education and Leadership
Development Michigan Farm Bureau
(Director)

LC SCRAMLIN Agriculture, Livestock & Home Arts Director; Oakland County Fair, GM

JACKIE SCRAMLIN
Agriculture, Livestock & Home
Arts Director; Oakland County Fair,
Director

WALTER SLAN Volunteer RAY AND JUDY SMITH Swine Superintendent

DAN STENCIL
Oakland County, CPRE Executive
Director

CRAIG STIGLEMAN Shrine Circus

CAL & WHITNEY STONE 2 Stone Events

JESSICA STRIEGLE
Northville Community Foundation
(Mayberry Farm) (Executive
Director)

TIM SULLIVAN Pepsi

ERIC SUPPES
Universal McCann-Great Lakes
Business Center (RAM)

ED SWEET Hyatt

SUE WELLS
Oakland Parks & Rec, Ops. Manager

WAYNE WROBEL City of Novi Council

ERIC YOUNAN Fifth Third Bank

TARZAN ZERBINI Shrine Circus

ASSISTANT CHIEF ERICK ZINSER
Novi Police Department

Establishing the vision and direction of an important community event, such as The Michigan State Fair, could never be accomplished without the support and participation of many valued volunteers. A dedicated and talented core group of individuals provided the heart and guidance for the 2015 Fifth Third Bank Michigan State Fair, as the Steering Committee.

Our deepest gratitude and thanks go out to them for their efforts to help make the State Fair a multi-faceted event that effectively serves many broad community objectives.

#### **OUR TITLE SPONSOR FIFTH THIRD BANK**



Senior Vice President/Affiliate Marketing Director Fifth Third Bank and Kent Roberts Urban Youth Agriculture Program Director Photo credit lane Purslow

Once again, Fifth Third Bank was proud to serve as the presenting sponsor of the Fifth Third Bank Michigan State Fair. Now in its third year, the fair has firmly re-established itself as one of the more popular Labor Day Weekend traditions as evidenced by its 22% spike in attendance.

This sponsorship is gratifying for Fifth Third Bank for many reasons. As the "Curious Bank," we wondered if Michiganders knew the importance of farming and agriculture to Michigan's economy and its status of our state's second-largest industry. Thanks to the Fifth Third Bank Michigan State Fair, many of them now do. The farming and livestock exhibits spread across the fair's 43 acres provide an educational opportunity for metro Detroit's urban and suburban families, many of whom do not often get to see cows, sheep, goats and horses in real life or learn how the food they eat goes from farm to

For the second straight year, the Fifth Third Bank Michigan State Fair coincided with our Stand Up To Cancer (SU2C) campaign. We were grateful for the opportunity to spread our message to the 122,000-plus attendees who helped us raise money by sharing stories of how they fight cancer by using



the hashtag #HowlFight on social media. Each post earned \$1 for SU2C and fairgoers have helped Fifth Third Bank payout more than \$5 million to SU2C to date.

Additionally, the Fifth Third Bank charitable components align with our mission of improving the lives of those in our communities. With that in mind, we were pleased to be part of an effort that provided more than \$400,000 in contributions to a wide range of community organizations.

While southeast Michigan has a number of events each Labor Day Weekend, we believe the Fifth Third Bank Michigan State Fair is the #1 event for families. It has a variety of activities for all ages and provides the perfect balance of entertainment and education. We are already looking forward to next year's "bigger and better" Fifth Third Bank Michigan State Fair.

> - Jack Riley, Senior VP of Marketing, Fifth Third Bank



Dave Girodat President & CEO Fifth Third Bank Eastern Michigan

#### **MAJOR SPONSORS**

The initial question, posed in 2012, as to whether or not the business community would embrace and support a new model Michigan State Fair at the Suburban Collection Showplace in Novi has been answered with a resounding "Yes!" In and around this effort to build on the State Fair Tradition. The Michigan State Fair, a Private Entity LLC, and forprofit organization, which receives no support from taxpayers or the State of Michigan, has formed key partnerships with those who were inspired by the challenge. The various roles these partners play cannot be overstated, and are instrumental to our continued growth as we reestablish, reinvent, and reimagine the role of a State Fair in the 21st Century. Foundational sponsors Fifth Third Bank, Bright House Networks, Suburban Collection Showplace, St. John Providence Health System, Detroit Moslem Shriners, C.F. Burger Creamery, Guernsey Farms Dairy, ITC, and Detroit Convention and Visitors Bureau, Livingston County Farm Bureau, Oakland County Farm Bureau, The City of Novi, Edward Jones Investments of Northville, AV Squared Audio and Visual, Art Craft Display Event Service, Epoch Hospitality Group all joined us as we began this journey and adventure, rekindling a beloved, dormant tradition that had meant so much to so many for so long. These first few years have been a time of astonishingly rapid growth in all components of the Michigan State Fair and includes adding substantial new partners to our sponsor family. Along the way we were fortunate that Kroger Company of Michigan, Pepsi, Sunglo Services,

Metro Sanitation, Elite Surface Shield, Eradico
Pest Control, The Michigan Soybean Promotion
Committee, 2 Stone Events, Infinity Primary Care,
Studio B, Media Alchemy, LLC, Hadrout Design,
Pearl Sound Studios, and Hyatt Place Detroit/
Novi, among others, all added their singular
skills and talents to the efforts of the founding
partners and the State Fair Steering committee
members, increasing the amazing groundswell of
overall support and positivity. All of this combined
energy, imagination and inspiration has elevated
each successive Fifth Third Bank Michigan State
Fair to be better that the last.

The 2015 State Fair continued to build on this network of support and welcomed new partners RAM Truck, Budweiser, Blue Care Network of Michigan, North American Honda, Marvel Apps and the Carrot Pass, Michigan Farm Bureau, U.S. Foods, Oakland County Parks and Recreation, Rosetta Hardscapes, Huron Valley Ambulance Services, Michigan State University Extension, K12, Kalmbach Feeds, and a large increase in commitment from Galaxy Fence Services, The Landscape Group, and Suburban Landscape. We are truly grateful and humbled by all the support that we have received from our sponsorship family and are proud to call them partners as we create a Michigan State Fair that celebrates and promotes Michigan Agriculture, Business, and Industry for the benefit of our fellow Michiganders.



























Michigan State Fair Gold Ribbon Scholarship Program for Urban and Rural Agriculture awards increased from \$30,000 in 2014 to \$40,000 for 2015, with a total of 54 recipients. These scholarship programs are made possible through the dedicated support of State Fair sponsors Bright House Networks, C.F. Burger Creamery, Fifth Third Bank, the Detroit Shriners, Kroger Company of Michigan, and Guernsey Farms Dairy. Michigan State Fair Gold Ribbon Scholarship Recipients all received at least one gold ribbon from their local County Fair and were also reviewed on the basis of their academic and community involvement. Urban Scholars were considered based on their contribution to agriculture and food education in cities with populations greater than 30,000.

This scholarship program serves as a bridge and connector between our urban and rural communities. These urban farming initiatives are relatively new compared to the more traditional areas within our rural communities. Urban farming initiatives are now serving as important cornerstones in helping many urban areas begin to thrive. The rural winners carry forward the rich Michigan farming traditions that have made our State a national leader in agriculture for more than a century. These scholarship winners clearly demonstrate their passion and commitment, in representing the desires of their generation of young people. As Michigan's second leading industry, these students are real life examples that the agricultural legacy is strong and will continue. This year's winners represent 18 different counties and 10 Urban Gardens/Farms within Michigan.

#### **2015 URBAN WINNERS:**

BRIGHTMOOR YOUTH GARDEN TIERRA MODOCK

CADILLAC URBAN GARDEN
DIEGO BARAJAS
CHRISTOPHER LARA

PAULINA TORRES-GUZMAN

EARTHWORKS
TYLER CHATMAN
LAUREN BROWN-DANZY
BLAIR DANZY
BRYCE DANZY
JULIEN DANZY
ANTHONY MORGAN
AALIA MUHAMMAD

OAKLAND AVENUE URBAN FARM CARLEE BROWN ALKESHA GRIFFIN CHRISTOPHER GRIFFIN

JADE MATHIS MYA NIXON

**OHANA GARDENS** 

MY'KEL ALLIX
OHANA GARDENS YOUTH
PROGRAM
DESTINY SILLS

PUTNAN COMMUNITY GARDEN CHELSEA BEST SPRINGWATER LANE HOME GARDEN

ANNA MEASOM

SUN, WATER & SEEDS 4H CLUB

AARON HUTKA
ALANA HUTKA
SUSANNA KHANUK
GWENDOLYN KLENKE
DECLAN BUSH
ETHAN BUSH

TOLLGATE FARM EDUCATIONAL HEATHER GREGORY Our winners are diverse and represent the ever-changing culture of our great State. With the generosity their investment of time and energy, plus pride in their work, will deliver a strong dividend for not only the scholarship winners but also Michigan State Fair to the State of Michigan.

A special thanks to Senator Mike Kowall, Representative Kathy Crawford, Director of District Affairs for the Office of Senate Majority Floor Leader Mike Kowall, Lynn O'Brien, and Chief of Staff for Representative Kathy Crawford, Ruth Ann Jirasek, for collaborating on the visit to the State Capitol, the Senate, and the house of Representatives making lasting memories for the scholarship winners. We would also thank Bright House Networks and The Kroger Company of Michigan for leading the charge to increase funds for the scholarship programs for 2015:

2015 RURAL WINNERS:

DAIRY

CIARA ALLAN

LIVESTOCK: SWINE

LAUREN BICKEL

\*OVERALL LIVESTOCK

JAYCIE BROWN LIVESTOCK: SHEEP JAYCIE BROWN

\*OVERALL LIVESTOCK

**BRAD CHAPMAN** LIVESTOCK: SHEEP **BRAD CHAPMAN** 

LIVESTOCK: GOATS

LAURA COON

**\*OVERALL HOME ARTS/** AGRICULTURE

LYDIA DAVENPORT HOME ARTS LYDIA DAVENPORT

DAIRY

MACKENZIE DELONG

**HOME ARTS** 

HUNTER DIVERT

HOME ARTS

GRETA GMAZEL

**HOME ARTS** 

MEGAN GUYETTLER

**HOME ARTS** 

MEGAN HEYDALUFF

**HOME ARTS** 

CAMILLE KOWALSKI

EQUINE

KELSEYLAYMAN

**HOME ARTS** 

**KARLIELOKUTA** 

**HOME ARTS** 

JESSICA MARIMIETRI

LIVESTOCK: BEEF

KENDRA MERRIMAN

**HOME ARTS** 

**OLIVIA OMER** 

\*OVERALL LIVESTOCK

ETHAN PLANK

LIVESTOCK: RABBIT

ETHAN PLANK

\*OVERALL LIVESTOCK

TOM PURVES

LIVESTOCK: POULTRY

TOM PURVES

**\*OVERALL HOME ARTS/** 

AGRICULTURE

**ALEXANDRA REAU** 

AGRICULTURE

ALEXANDRA REAU

**HOME ARTS** 

**BLAISE RHEIN** 

HOME ARTS

LAREN RINGWOLD

LIVESTOCK: SWINE

MADALIN ROBERTS

LIVESTOCK: GOATS

TAYLOR WALKER

\*OVERALL LIVESTOCK

TARA WILSON

LIVESTOCK: RABBIT

TARA WILSON

**HOME ARTS** 

**KELSEY YARGER** 

bright



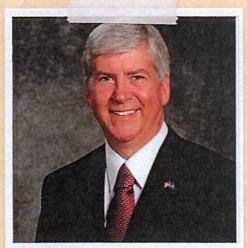






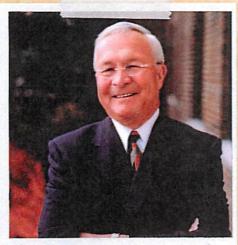


#### **OUR COMMUNITY PARTNERS**



Rick Snyder Governor



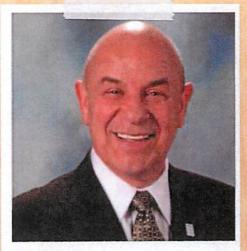


L. Brooks Patterson Oakland County Executive



Jamie Clover Adams Director, MDARD





Bob Gatt Mayor, City of Novi

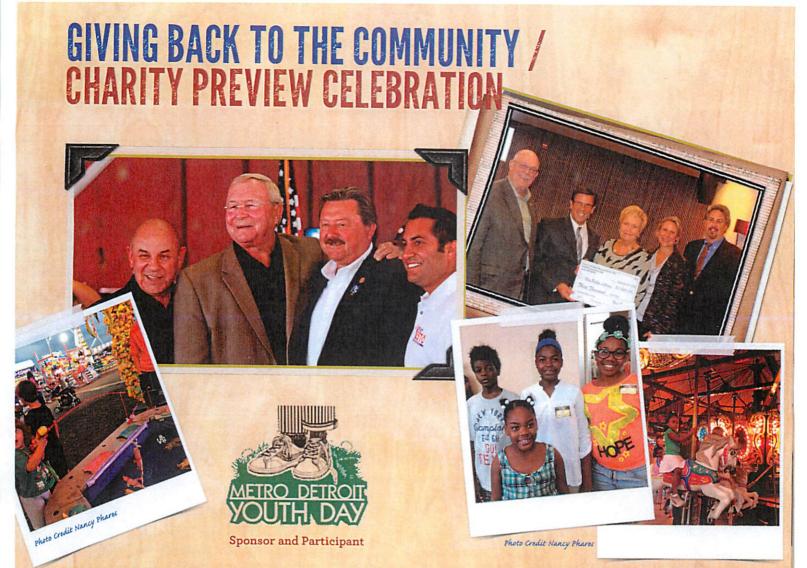






#### Special Thank You to:

Novi Police Department, Novi Fire Department, and St. John Providence Health System



A renewed commitment to community, family fun and charitable giving has been key to the vision for the Michigan State Fair since its revival. Each year we share our time and talents, as well as funding and support to many charitable and community organizations throughout the State. We are forever dedicated to playing our part in helping organizations and individuals who are making Michigan a better place for all. In presenting Michigan's #1 Family Event, we also recognize that for various reasons, whether financial, medical, or other special circumstances, not all Michigan families have the ability to attend and enjoy the State Fair. In this spirit, we are delighted to host our marquee preview event each year, to spread the fun and magic of the Fifth Third Bank Michigan State Fair, thorough the Grand Affair and Charity Preview Night Celebration, to those who may enjoy it most.

The fresh approach to the preview evening for the 2015 Fifth Third Bank Michigan State Fair, Thursday, September 3, was extremely well

received! Outdoors, the Children's Charity Preview Party welcomed an estimated 5500 Michigan family members involved with local non-profit organizations such as the Rainbow Connection, Make-A-Wish Foundation, Special Olympics and Shriners Children's Hospitals, as well as active military and veterans. This year the State Fair made a broader community outreach for this very special, invitation-only, free event, and welcoming roughly 30% more attendees over 2014. Indoors. the sponsors networking reception and cocktail hour, was a great success, with several hundred community leaders, sponsors and supporters of the Fair enjoying a bountiful buffet provided by bd Mongolian Grill, Epoch Hospitality Group, Famous Dave's, Shriners Silver Garden Events Center, Olive Garden, Applebee's (Novi), Kroger Company of Michigan, Guernsey Farms Dairy, A Serendipity Cakery, Duel Restaurant (Novi), Rojo Mexican Bistro (Novi).





#### FRIENDS OF THE FAIR - OUR VOLUNTEERS

Enormous thanks to our 2015 Fifth Third Bank Michigan State Fair Volunteers!

We are grateful for all of the many volunteers who shared their time and talent with us in 2015. Our volunteers join us from all walks of life, a broad array of communities and organizations from across the State, and even a husband and wife team from Florida! This year we were fortunate to have Blue Care Network of Michigan Employees join our ranks and the Detroit Moslem Shriners returned, creating the largest volunteer group to date.

With volunteer participation up over 38% from 2014, the Suburban Collection Showplace was filled with blinding fluorescent yellow t-shirts bustling everywhere. Volunteers performed every imaginable Fair function, from wrist-banding visitors, to waving crowds over to enjoy a contest at the Pepsi Contest Central Stage, or to enjoy a unique performance at the Blue Care Network of Michigan Community and Cultural Stage. They worked at the Bright House Network Shrine Circus, answered questions at the State Fair historical booth-and also provided assistance at multiple general information booths. The Fair volunteers are truly the shining face of the Fair, and their smiles were mirrored by the smiles of our fairgoers, as they graciously thanked Fifth Third Bank Michigan State Fair staff and volunteers for working so hard to keep a Michigan tradition alive.

When you volunteer, it means you give of yourself without condition and with heartfelt devotion. Our devoted volunteers were a reflection of compassion and unselfish caring, working tirelessly throughout the Fair weekend to help bring back an event that Michigan so well deserves. We are so grateful for our new family of volunteers and look forward to growing participation in years to come. There is no "I" in Team, but we are so thankful there is a "U" in Volunteer!



### OVER 500 VALUNTEERS

Photo Credit Nikita Cargins

Live warm human investment of time, energy, smiles and hugs was one of the essential ingredients to the success of the 2015 Fifth Third Bank Michigan State Fair!





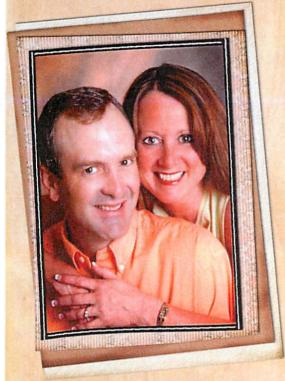


A nonprofit corporation and independent licensee of the Blue Cross and Blue Shield Association

INTERESTED IN VOLUNTEERING AT THE STATE FAIR, PLEASE CONTACT US AT INFO@MICHIGANSTATEFAIRLLC.COM

#### DISTINGUISHED SERVICE AWARDS

A new State Fair means new traditions. Each year the Fifth Third Bank Michigan State Fair recognizes one or two individuals that have shown impactful dedication and freely invested their time and energy to help revive the annual tradition of a Michigan State Fair. In 2015 it was abundantly clear that three individuals invested their time, talent, heart and soul to help reestablish the great Michigan State Fair Tradition. Mark and Deb Chapman and Mike Mulligan were recognized at the Grand Affair kickoff event as the recipients of the 2015 Fifth Third Bank Michigan State Fair Award for Distinguished Service.



### MARK AND DEB CHAPMAN

Mark and Deb have been actively involved in the Fifth Third Bank Michigan State Fair since its beginning. Mark and Deb serve on the Steering Committee, representing the livestock part of the Fair. They serve as the sheep superintendents and Deb is also responsible for Premium List Catalog for the State Fair.

The Chapman family has had a long history with the Michigan State Fair, and were continuous exhibitors at the old fair on Eight Mile for more than 70 years. Mark's grandfather, Delmont Chapman, served on the State Fair Advisory Board for many years in the 60's and 70's. Mark practically grew up showing sheep at the State Fair, and he and his family were greatly disappointed in the closing of the original fair, which at that time was the oldest State Fair in the nation.

Mark and Deb believe in the State Fair and the opportunity for the agricultural sector to showcase itself to the overall population of the state. As each generation becomes further removed from the farm it is very important for agriculture to share the accumulated knowledge of generations, and educate the general public.

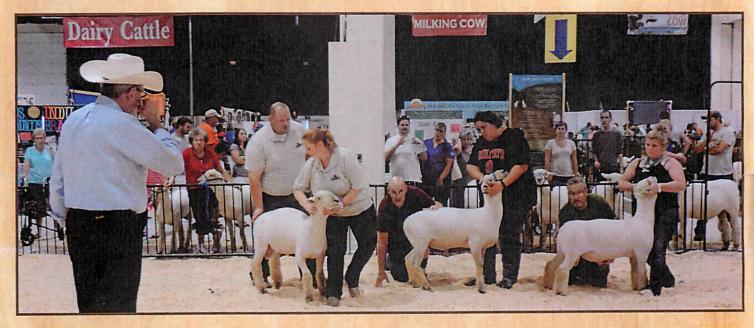


Photo Credit Jack Purslow

### MKEMULLGAN

Mike has been a fixture at the Suburban Collection Showplace over the last few years and as the State Fair has expanded, he has also been very instrumental as we work to create a flexible and modern fairgrounds. By sharing his wisdom and experience with landscaping, earth moving, and hard scape creation we were able to simultaneously improve the Suburban Collection Showplace, create unique spaces for the 2015 State Fair, and enhance the overall experience of visitors.

#### LIVESTOCK AND SHOWMANSHIP



2015 was a Banner year in the Livestock/Home Arts/Equine Areas of the Michigan State Fair!

Agriculture Directors LC and Jackie Scramlin are proud to announce that once again they saw substantial increases in nearly all areas. With increases of 55% in the Agriculture and Home Arts areas and total increases of 60% in the Livestock areas, (especially Youth) showed that the success of the Fifth Third Bank Michigan State Fair will continue to showcase the best our state has to offer, as well as drawing exhibitors and participants from throughout the Midwest. With the only area showing a decrease being Poultry (due to the 2015 summer ban on exhibiting live birds), exhibitors still used the opportunity to show pictures of their birds and provided fairgoers with educational exhibits to inform them of their projects.

New for the 2015 fair was the Equine (horse) area!
Superintendent Sara Ressler did an outstanding job
putting together a program for all types of horses,
concluding with a Heavyweight Horse Pull on Labor
Day Monday.

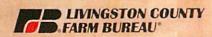
The Michigan Make It Yourself with Wool contest was new this year. Contestants created garments comprised of at least 50% wool, and then modeled them for the audience at the Fair. The local winners advanced to the National Make It Yourself with Wool Contest. They were judged not only on their modeling ability, but also on the construction of their garment.

Once again the Fifth Third Bank Michigan State Fair

offered the Rural Youth of the state an opportunity to compete for \$20,000 in scholarships (up from \$15,000 in 2014). The 26 winners from 16 counties not only received their scholarship, but were also invited to the state capital to be recognized on the State Senate floor courtesy of Senator Mike Kowall. State Representative Kathy Crawford also recognized the winners in the Michigan House of Representatives.

Another highlight of the fair for exhibitors was the Showmanship Sweepstakes and the Michigan State Fair Livestock Judging Contest. Showmanship Sweepstakes had the top youth showmen from the five livestock areas compete for the top overall showman. In the Livestock Judging Contest 38 contestants from 15 counties judged classes and gave reasons or answered questions on the animals presented. Many of the contestants were preparing for National Livestock Judging Contests including the Michigan State University Livestock Judging team.

Also increasing this year were the number of exhibitors who built educational displays to share more information about their species. In addition to the outstanding livestock shows that went on all weekend, our fair guests were able to watch sheep shearing and enjoy watching the baby animals in the Beginning of Life area.

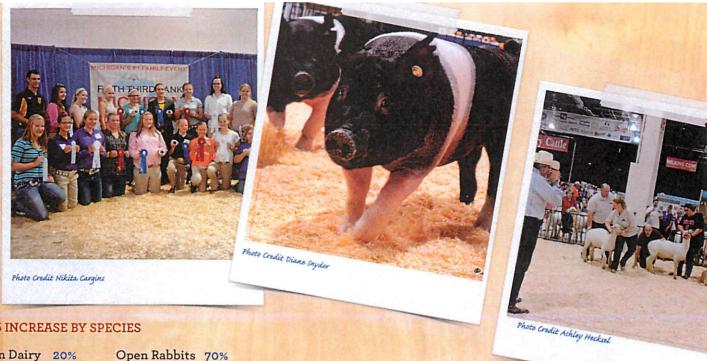












#### 2015 INCREASE BY SPECIES

Open Dairy 20% Youth Dairy 24% Youth Rabbits 43%

Open Beef 17% Draft Horses no 2014 Show 8 Youth Beef 48% Light Horses No 2014 Show 170 Open Sheep 36%

No Live Birds in 2015 decreases in birds Youth Sheep 33% Open Poultry -40% Open Goats 152% Youth Poultry -38% Youth Goats 33%

Open Swine 172% Youth Swine 217%

#### **2015 SUPERINTENDENTS**

AGRICULTURE DIRECTORS

LC AND JACKIE SCRAMLIN

**EQUINE** 

SARA RESSLER

BEEF

TOM KLINK

DAIRY

CARRIE DELONG

SHEEP

**MARK & DEB CHAPMAN** 

GOATS

LINDA COON

SWINE

**RAY & JUDY SMITH** 

**POULTRY** 

KRISTINE KONESKO

RABBITS

WILLIS & CHRIS PLANK

**HOME ARTS** 

MARSHA HARWOOD

**AGRICULTURE** 

**JUDY MOORE** 

**URBAN AGRICULTURE** 

JERRY HEBRON



Photo Credit Diane Snyder



MICHIGAN'S #1 FAMILY EVENT

@Lady Di

### HOME ARTS AND AGRICULTURE

Exhibitor participation in the Home Arts and Agriculture section of the Fifth Third

Bank Michigan State Far continued to soar in 2015, with an increase of 55% over the 2014 increase of 100%.

Many more growers of Michigan commodities more canned and preserved foods, more urban and rural youth agricultural displays, and along with more Home Arts and Craft projects filled the Home Arts Pavilion this year!

The Michigan Fair Favorites Cookbook was updated, featuring more than 160 more recipes gathered by Home Arts Superintendents Marsha Harwood and Judy Moore, with the addition of popular local restaurant chefs, and the area added a stage for contests, demonstrations and entertainment.

Photo Credit Diane Snyder youth make it with wool State Competition



Photo Credit Louis Waldock

Photo Credit J PURSLOW



Photo Credit Ashley Hecksel



Photo Credit Ashley Hecksel



Photo Credit Ashley Hecksel



Photo Credit Ashley Hecksel









Agriculture

Photo Credit Nikita Cargins

#### **NEW FOR 2015:**

## URBAN AGRICULTURE COORDINATOR AND SCHOLARSHIP LIAISON COORDINATOR JERRY HEBRON

This year the State Fair Welcomed new Urban Agriculture Coordinator and Scholarship Liaison Coordinator Jerry Hebron. Jerry visited over 16 community, school and church gardens in Detroit, Hamtramck and Highland Park and made contact with two gardens in Flint, and Battle Creek. Her dedication of telling the story of the "new" State Fair and the scholarship program increase the number of applications received to over 50. Scholarships were awarded to 25 applicants from Detroit, Highland Park, Novi, West Bloomfield, Wixom, Pinckney, Farmington Hills and Hazel Park.

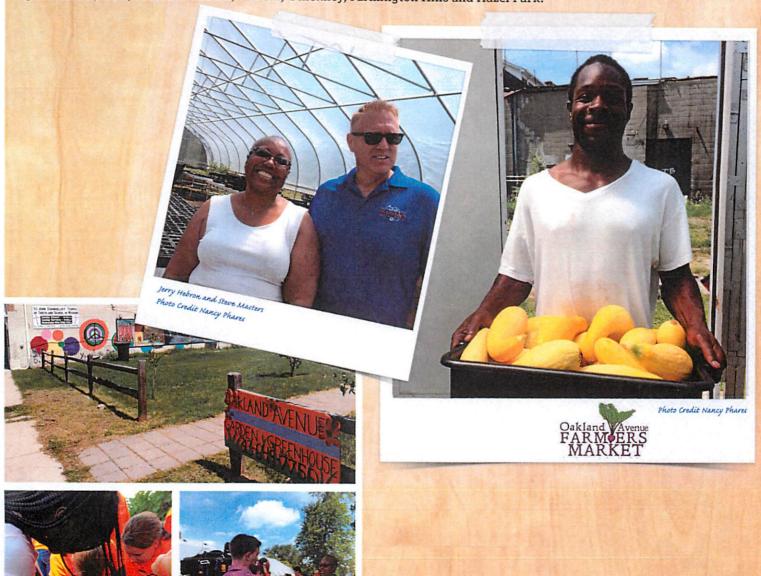






Photo Credit Nancy Phares

### NEW FOR 2015: EQUESTRIAN PAVILION



One of the most important new features to debut at the Fifth Third Bank Michigan State Fair in 2015 was the new Ram Truck Equine Pavilion, at the western end of the Fairgrounds, managed by new Superintendent Sara Ressler. The two arenas and barns were very warmly received by fairgoers and hosted classes in English (Hunt and Saddle Seat), and Western Equitation plus Pleasure classes, Barrel Racing, Reining, and expanded pulling events, as well. As the Fair continues to evolve, expanding the equine component is an important natural progression and development of longtime State Fair attractions.



Photo Credit Nancy Phares



Photo Credit Debra Morgan

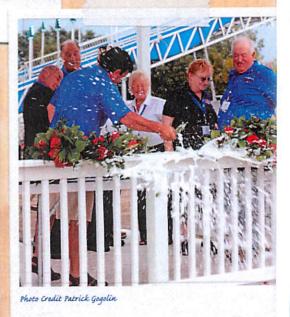




Photo Credit Nancy Phares



Photo Credit Lady D



A special Thank you to Galaxy Fence, The Landscape Group, Rosetta Hardscapes and Suburban Landscape Supply for your help and support with Equestrian Arena, Green Space, and various grounds improvements







## **NEW FOR 2015:**

### HONORED CITIZENS DAY

Honored Citizens Day program and activities debuted on Friday, September 4, welcoming all those 65 years of age and older to the State Fair, free of charge, and providing box lunches and refreshments, courtesy of St. Johns Providence Health Systems and U.S. Foods. Buses ferrying seniors from across Southeast Michigan queued up outside the Suburban OAKLAND PRESS Collection Showplace, and multi-generations of Michigan families enjoying the Fair together were also very much in evidence. The Honored Michigan Citizens for 2015 were Marv Gans, Northville, Florence Baptist, Novi, Marion Cowan, Northville, and Barb Lewis, Novi, and the grand prize for best essay describing a Michigan State Fair memory was awarded to Judith Lewis Hansel, of Canton.





The First Annual State Fair Parade along Grand River in Novi welcomed more than 350 participants from across Southeast Michigan, anchored by the Detroit Shiners mobile brigade.

#### MEGAJAM

#### METROTIMES

The exciting new Monday Michigan Mega Jam, presented by the Metro Times, was one of the new features of the 2015 Fifth Third Bank Michigan State Fair, which offered an All-Star band of luminaries paying tribute to decades of Michigan hits, including Jill Jack, Thornetta Davis, Nadir Omowale, Tosha Owens, Sean Blackman, Brandon Calhoon, Caleb Gutierrez, Jorg Kerasiotis, Steffanie Christi'an and Alison Albrecht, backed by the stellar St. Cecilia (Todd Glass, James Simonson, Brett Lucas) with very special guest Chris Codish on keyboards, along with Dezi Magby, DJ Psycho of the Detroit Techno Militia. This troupe of multi-genre performers represents some of Detroit's finest talent, recognized around the globe for their shining vocal ability and stellar musicianship.



Photo Credit Nikita Cargins



Photo Credit Nikita Cargins



Photo Credit Mary Jane Scott





Photo Credit Nancy Phares



Photo Credit Nancy Phares

#### NEW FOR 2015: CARROT APP



Marvel Apps was very recently named one of the "50 Michigan Companies to watch for 2015" by Governor Rick Snyder, sponsored by the Michigan Celebrates Small Business coalition.

The Fifth Third Bank Michigan State Fair forged an exciting new partnership with Marvel Apps of Royal Oak and their new, free Carrot Pass mobile app for iPhone and Android, a ground-breaking new product that utilizes beacon technology to offer financial rewards for living an active lifestyle, and allows participating businesses to reward patrons for the number of steps they take each day for the 2015 Fair. The partnership allowed fairgoers to buy tickets, schedule their day and get entertainment reminders, navigate the newly expanded fairgrounds via maps, get information on the animals and exhibits while strolling the grounds, and vote in the nightly State Fair Super Star contest.



Thousands of Michigan State Fair-goers experienced the 40,000-square-foot interactive Ram Truck adventure zone at this year's expanded state fair and the Raminator monster truck – Monster Truck Racing Association's "Truck of the Year" – on display, ensuring fun for the whole family.

"Ram is proud to be a part of this year's Michigan State Fair, a longstanding tradition that celebrates the importance of farmers and farming communities to our state," Jeff Hines, Director of the Great Lakes Business Center – FCA US LLC, said. "The Ram test track is always a crowd pleaser and we welcome the opportunity to bring this exciting event to the fair so participants can experience the power and capability of Ram trucks."

## HONDA NORTH AMERICA ATV TEST TRACK

Hundreds of Fair goers lined up daily to test drive newest all-terrain vehicles from North American Honda. The roughly 2 acre test track area was complete with a vehicle showroom, safety orientation area, and a fully decked 50 foot semi that dominated the Eastern most area of the Fairgrounds.



Photo Credit Nikita Cargins



Photo Credit Nikita Cargins



Photo Credit Nikita Cargins



Pleata



#### ST JOHN PROVIDENCE HEALTH SYSTEMS MAIN ENTERTAINMENT STAGE



Believe in better

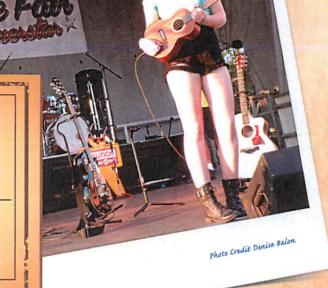






STATE FAIR SUPERSTAR **CONTEST WINNER** 

CARLY BINS



Superstar Contest: The Second Annual State Fair Superstar contest offers a purely Michigan mentoring twist on the standard pop music talent contest formula! Sixteen finalists performed on the Main Stage Friday evening September 4, and Saturday evening September 5, with the Grand Prize Winner Carly Bins, 16, of Northville, plus Runners-Up, Elise King of Detroit and Mia Green of Troy, headlining the Main Stage on Sunday evening September 6.

The Superstar prize package includes \$2000 cash, plus

songwriting advice and artist and repertoire coaching from award-winning artist/ producer Nadir Omowale, live performance booking consultation from 2 Stones Events, and production of a three song EP at world famous Pearl Sound Studios of Canton, with internationally renowned sound engineer and producer Chuck Alkazian. in addition to Indie Music Business Coaching from new Music Mentor Jill Jack.

The new EP from 2014 Superstar Winner Alison Albrecht, 15, of Birmingham, was also released during the State Fair, she signed hundreds of autographed copies on the Midway during the weekend, performed a solo set on the Main Stage, and also performed as a featured member of the All Star ensemble Michigan Mega Jam, including a powerful duet with Superstar Mentor Jill Jack on Jack's original "It Makes Me Wonder", "Alison Albrecht" is available on iTunes and the debut single "Midnight" is also streaming at www.AlisonAlbrecht.com

#### TWO STAGES OF FUN!

#### ST JOHN PROVIDENCE HEALTH SYSTEMS MAIN ENTERTAINMENT STAGE

#### State Fair Choir

In the third year of the Michigan State Fair Choir, "100 Years of Broadway" was performed under the direction of Elisa Fixler. With more than two dozen participants coming from the locales of Trenton, Ann Arbor, Grand Blanc and many cities in between, the group put on a great show!







#### **BLUE CARE NETWORK COMMUNITY AND CULTURAL STAGE**

2015 marked Blue Care Network of Michigan joining the State Fair as the sponsor of the Community and Cultural Stage to help us celebrate cultural diversity. The state of Michigan is historically a rich melting pot of diverse cultures, the state we know and love today was built by centuries of immigrants from all corners of the world, with all of their myriad ethnicities and traditions. Dr. Mav Sanghvi and the Entertainment Committee reached out to all the various international embassies in the Metro Detroit area, with an invitation to showcase and celebrate culture and their heritage at the Fifth Third Bank Michigan State Fair.

The mission of this new stage is to celebrate the wealth of our diversity with a broad audience.

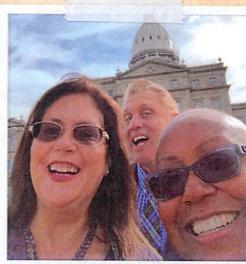






#### **OUR SOCIAL MEDIA**





Nancy Phares, Steve Masters, Jerry Hebron

The Fifth Third Bank Michigan State Fair Facebook page, which debuted at the end of January 2013, peaked at nearly 25,000 followers by the end of the 2015 State Fair, with spirited conversation and terrific engagement, as fans enjoyed news about developments with the State Fair, Michigan agriculture, product production, tourism and future Fair endeavors. Along the way, the number of Fair followers surpassed that of many several other large, local festivals and events, some with much longer histories. The Facebook page was generating more than a half million impressions per week during the weeks leading up to and during the State Fair. The State Fair Twitter page has also doubled its followers through the course this year; with much more engaged activity, tags and re-tweets, as well.



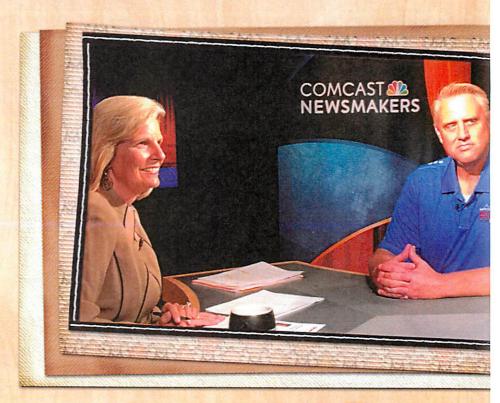


Roop Raj Fox 2, Ken McClure Kroger Co. of Michigan, Mackenzie Martin MSU Product Center



#### MEDIA PARTNERSHIPS AND ADVERTISING

Media Partnerships and Advertising: The Fifth Third Bank Michigan State Fair further built on very solid media and advertising partnerships with Fox 2, CBS Radio stations WOMC 104.3 FM, Amp Radio, and WYCD, Bright House Networks, Cumulus Radio WJR, and Hometown Newspapers in 2015, and also enjoyed great, warm recognition and statewide media coverage of the new, private entity Michigan State Fair, LLC. The Fair also added important new collaborative media partnerships with Adams Outdoor and the Detroit Public Television show Under the Radar Michigan, Hour Detroit Magazine came aboard as a sponsor of the kitchen stage, The Oakland Press/ Digital First Media supported the new Senior Day programs, and the Metro Times was a proud partner of the Monday Michigan Mega Jam.





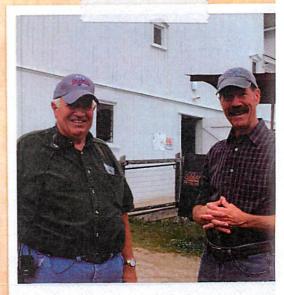


The wonderful State Fair and Fox 2 partnership is once again deserving of special recognition, as their news planning editors and promotion and marketing department went above and beyond to support many important Fifth Third Bank Michigan State Fair initiatives, including the Superstar Contest, for which they ran a free recorded promo during July that helped boost applicants, and also Urban Agriculture initiatives supported by the State Fair, plus the Michigan Mega Jam, Make it with Wool contest, 4-H programs, Farm Fresh Cookbook and more









UTR Michigan's Tom Daldin and LC Scramlin talk State Fair, old and new.

## HOOLE



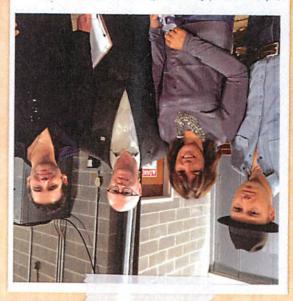


#### MELKOLIMES

Artick-Producer/Mentor Madir Omonoale notibe 2014 Supertar Alicon Albrecht, in citadio at Fox 2.



Back Stays at Fox 2 before Megalaw live segment with performer Simonson. Lucas and fill Jack, 5/3 Bank's Jack Riley, and performer James Simonson.



Rance Chodhosothi. The Great Foodini." and Steve Marters Cooking soith Kids. at the Fox 2 Cooking school







#### THE IMPACT

People from over 383 Cities, Villages, and Townships in Michigan visited the 2015 Fair along with residents from 7 States! Below are our some of the communities where our guests call home

# PEOPLE FROM CITIES, VILLAGES AND TOWNSHIPS WERE OUR GUESTS

ALLEN PARK ALMONT ALPENA ANN ARBOR ARIZONA ARMADA AUBURN AUBURN HILLS BATH BELLEVILLE BELLEVUE BERKLEY BIRMINGHAM **BLOOMFIELD HILLS** BRIGHTON BROWN CITY CANTON CARLETON CARO CASS CITY CENTER LINE CHARLOTTE CHELSEA CLARKSTON CLAWSON CLINTON TWP. CLIO COMMERCE CONCORD CONKLIN CROSWELL DAVISBURG DEARBORN DEARBORN HEIGHTS DECKER DECKERVILLE DETROIT

DEWITT

DOWAGIAC

DOWLING

DUNDEE EAST LANSING EASTPOINTE EATON RAPIDS **EAU CLAIRE** EDWARDSBURG EMMET FARMINGTON **FARMINGTON HILLS** FARWELL FENTON FERNDALE FLAT ROCK FLINT FORT GRATIOT FOWLERVILLE FRANKENMUTH FRANKLIN GARDEN GARDEN CITY GOODELLS GRAND BLANC GRAND LEDGE **GRAND RAPIDS GRASS LAKE** GREEN OAK TWP. GROSSE ISLE TWP. **GROSSE ISLE GROSSE POINTE** HARPER WOODS HARRISON TWP. HARTLAND HASLETT HAZEL PARK HEMLOCK HIGHLAND HIGHLAND PARK HIGHLAND TWP. HILLSDALE HOLLY

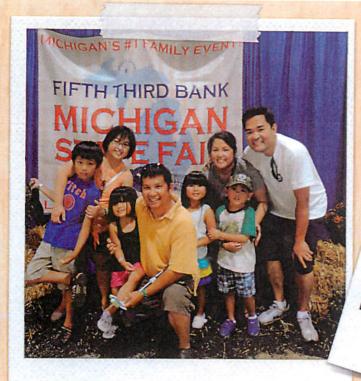
HOLT HOPKINS HOWELL. **HUNTINGTON WOODS** INKSTER IONIA **JACKSON** JASPER JONESVILLE KALAMAZOO KANSAS KAWKAWLIN KEEGO HARBOR LAKE ANN LAKE ORION LANSING LINCOLN PARK LINDEN LIVONIA LOWELL LUPTON LYONS **МАСОМВ** MADISON HEIGHTS MANCHESTER MARNE MARYLAND MASON MAYBEE MAYVILLE MELVINDALE MERRILL METAMORA MIDDLEVILLE MILFORD MILLINGTON MONROE MT. CLEMENS NEW BALTIMORE

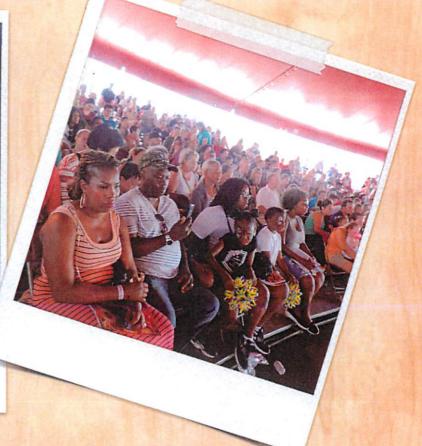
**NEW BOSTON** 

**NEW HAVEN** NEW HUDSON NEWAYGO NEWPORT NILES NORTH BRANCH NORTHVILLE NOVI OAK PARK OKEMOS ONONDAGA ORTONVILLE owosso OXFORD PARMA PAW PAW PERRY PETERSBURG PETOSKY PINCKNEY PLAINWELL PLEASANT LAKE PLYMOUTH PONTIAC PORT HURON PORTLAND PRESCOTT RAPID RIVER RAVENNA REDFORD TWP. RICHLAND RIVER ROUGE RIVERVIEW RIVES JUNCTION ROCHESTER ROCKWOOD RODNEY ROMULUS ROSEVILLE ROYAL OAK

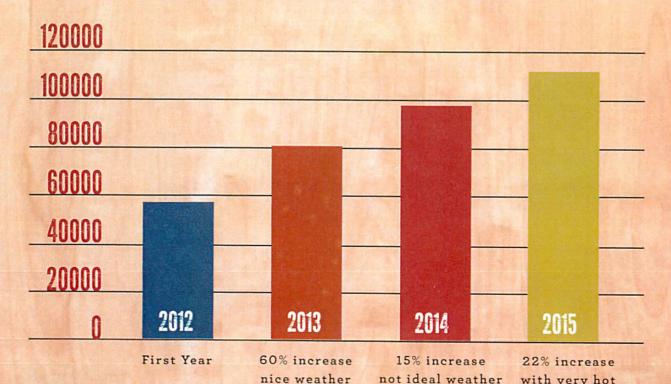
SAGINAW SALINE SHELBY TWP. SHERIDAN SMITHS CREEK SOUTH LYON SOUTH ROCKWOOD SOUTHFIELD SOUTHGATE ST CLAIR SHORES ST. JOHNS ST. JOSEPH ST. CHARLES STANDISH STANWOOD STERLING HEIGHTS TAYLOR. TEMPERANCE TRENTON TROY UTICA VAN BUREN TWP. VASSAR WALLED LAKE WARREN WASHINGTON WATERFORD TWP. WAYNE WEBBERVILLE WEST BLOOMFIELD WEST BLOOMFIELD TW WESTLAND WHITE LAKE WHITMORELAKE WILLIAMSTON WIXOM WYANDOTTE

**YPSILANTI** 





#### YEARLY ATTENDANCE INCREASES



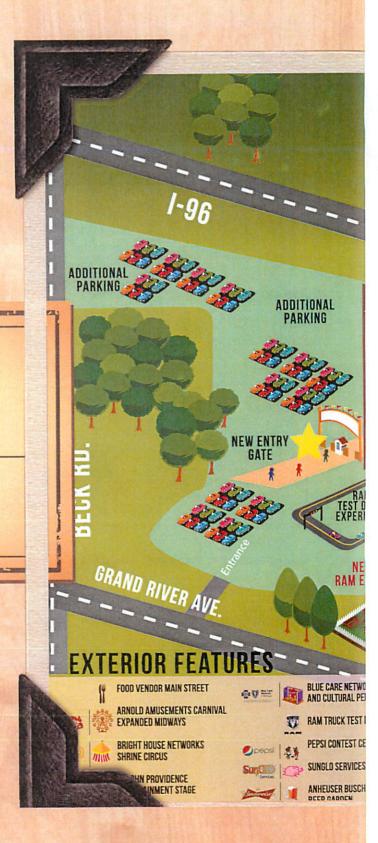
with very hot weather

## THE FIFTH THIRD BANK MICHIGAN STATE FAIR:

2016

SEPTEMBER 1, 2, 3, 4, 5

CONTACT US: 248.348.6942 INFO@MICHIGANSTATEFAIRLLC.COM



### MICHIGAN'S #1 FAMILY EVENTSM BIGGER, BETTER & MORE FUN!



#### **OUR VALUED MICHIGAN STATE FAIR,** A PRIVATE ENTITY, LLC 2015 PARTNERS



























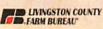














































































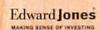
















































www.michiganstatefairllc.com 36

### Exhibit "C"

### MEMORANDUM



TO: DAVID E. MOLLOY

DIRECTOR OF PUBLIC SAFETY / CHIEF OF POLICE

FROM: JERROD S. HART JA

ASSISTANT CHIEF OF POLICE

SUBJECT: SUBURBAN COLLECTION SHOWPLACE - 2015 CFS

**DATE:** JUNE 17, 2016

I have reviewed all police and fire calls for service at the Suburban Collection Showplace for CY 2015 with Public Safety Performance Analyst Jason Porter. The overwhelming majority of our police and fire calls for service are generated by staff providing extra patrols and/or inspections at the facility.

The calls for service are listed as:

### **Police Department**

- 18 Vehicle Lockouts
- 04 Private Property Accidents
- 02 Animal Complaints
- 05 Assist Citizen / Civil Matter
- 03 Suspicious Circumstances
- 07 Larceny Complaints
- 01 Missing Person
- 01 AED
- 05 Liquor Inspections
- 02 Parking Complaint
- 243 Extra Patrols (96 related to the 5/3 Michigan State Fair)
- 01 Customer Trouble (unauthorized vendor selling knives at a show)
- 01 Accidental Discharge (gun show)
- 293 Total PD calls for service (93 related to the 5/3 Michigan State Fair)

### **Fire Department**

- 37 EMS (22 were during the 5/3 Michigan State Fair)
- 01 Smoke / Odor Investigation
- 06 EMS Stand-by (All related to 5/3 Michigan State Fair)
- 04 Public Relations Details (3 related to 5/3 Michigan State Fair)
- 45 Fire Inspections (40 related to the 5/3 Michigan State Fair)
- 93 Total (71 related to 5/3 Michigan State Fair)



U.S. Army Corps of Engineers **Detroit District Office** 

Phone: 313-226-2218, Fax: 313-226-6763

Website: www.lre.usace.army.mil

Exhibit "D"
Michigan Department of Environmental Quality Water Resources Division See staff map on page iii for contact information

Website: www.mi.gov/jointpermit



### **Joint Permit Application**

For Work in Inland Lakes and Streams, Great Lakes, Wetlands, Floodplains, Dams, High Risk Erosion Areas and Critical Dune Areas

www.mi.gov/jointpermit

### What is the purpose of the Joint Permit Application?

This Joint Permit Application was developed to facilitate the state and federal permit application process administered by the Michigan Department of Environmental Quality (DEQ) and the U.S. Army Corps of Engineers (USACE).

The Joint Permit Application is a multi-purpose application used to describe and quantify proposed activities regulated by the DEQ and/or the USACE. This application is for those activities regulated by the following Parts of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended by the State of Michigan.

- Part 301, Inland Lakes and Streams
- Part 325, Great Lakes Submerged Lands
- Part 303, Wetlands Protection
- Floodplain Regulatory Authority found in Part 31, Water Resources Protection
- · Part 315, Dam Safety
- Part 323, Shorelands Protection and Management (High Risk Erosion Areas)
- Part 353, Sand Dunes Protection and Management (Critical Dune Areas)

The regulated activities are summarized in Appendix D. The statutes and rules are available at www.mi.gov/jointpermit.

This application is also for those activities regulated by the USACE within the waters of the United States under Section 10, Rivers and Harbors Act of 1899 (33 U.S.C. 403) and Section 404, Clean Water Act of 1977 (33 U.S.C. 1344).

Preapplication Meeting: This is an optional service available for activities proposed in inland lakes and streams (Part 301), wetlands (Part 303), and critical dune areas (Part 353). A preapplication meeting can answer many questions regarding whether or not a permit is required and the review process. The application form and fee schedule are available at www.mi.gov/jointpermit.

### How do I complete the Joint Permit Application?

There are three parts to a complete Joint Permit Application package:

- Application Form
- 2. Maps and Drawings
- 3. Fee

An accurate and complete application package is required for processing: inaccurate or missing information will delay processing.

Follow the checklists on the following page for each part of the application package.

When you have questions or need assistance in completing the application package refer to the following information on our website www.mi.gov/jointpermit or you may contact the appropriate district office, page iii, or through the website link "Who to Contact."

- Joint Permit Application Training Manual
- EZ Guides for small projects
- Acronyms in Appendix A
- Sample drawings in Appendix B
- Minor Project and General Permit Categories in Appendix C
- Fee schedule in Appendix C
- State and Federal Authority and Penalties in Appendix D
- Glossary in Appendix E





### Application Checklist

The following website will provide township, range, section, latitude and longitude information:

www.mcgi.state.mi.us /wetlands/

www.geocoder.us

In each section check all boxes that apply to your project.

Show and label property lines on the site plan.

Label existing and proposed contours, dimensions, excavation and/or fill on the site plans and cross sections.

Provide tables for multiple impact areas.

16	CIS VV	www.ne.dsace.amy.mii
١.	App	lication Form
		Complete Sections 1 through 9 of the application form.
		An authorization letter from the property owner if someone other than the property owner is signing the application.
		Complete those Sections 10 through 20 that apply to your project. Follow the instructions at the beginning of each section. For additional information, the instructions for each sample drawing in Appendix B indicate the application sections you will most likely need to complete. Complete the application form as much as possible before adding attachments. Label each attachment with the applicant's name.
		Stake or flag the area for site inspection including the property corners, proposed road or driveway centerlines, and areas of proposed impacts. The site must be flagged when the application is submitted.
2.	Мар	s and Drawings
		All maps and drawings must be black and white, legible, reproducible, and sized to 8.5" x 11". Aerial photographs do not substitute for site plans. If larger drawings or blueprints are required to show adequate detail for review, you may also submit one full size copy.
		Vicinity Map: A map to the proposed project location that includes ALL streets, roads, intersections, highways, or cross-roads to the project. Do not assume review staff knows your project location.
		Project Site Plan: Overhead drawings to scale or with dimensions, length and width, of the proposed project are required. Show and label property lines on the site plan.
		Cross-section drawings are required. Provide the cross-sections and profile views to scale or with dimensions, length, width, and height.
		Elevation data must include a description of the reference point or benchmark used and its corresponding elevation. For projects on the Great Lakes or Section 10 Waters, elevations must be provided in IGLD 85. For observed Great Lake water elevations in IGLD, visit the USACE website under "water levels". If elevations are from still water, provide the observation date and water elevation. On inland sites, elevations can use NGVD 29, NAVD 88, a local datum or an assumed bench mark.
		Provide descriptive photographs of the proposed work site showing vegetation if wetlands are involved or the shoreline for shore protection projects. All photographs must be labeled with your name and the date of the photograph, indicate what they show, and be referenced to the site plan. Proposed activities or structure(s) may be indicated directly on the photographs using indelible markers or ink pens. Provide aerial photographs 1:400 or larger for major projects.
3.	Fee	
		Payment to the <b>State of Michigan</b> . Fees typically range from \$50 to \$4,000 depending on the type of project. Refer to Appendix C of the application and/or visit <a href="www.mi.gov/jointpermit">www.mi.gov/jointpermit</a> to determine the appropriate fee for your project and for directions to pay by credit card or electronic fund transfer payment.
	_	Applications should be sent directly to the district offices. Please refer to page iii, or refer to <a href="https://www.mi.gov/jointpermit">www.mi.gov/jointpermit</a> "who to contact" for address and/or phone number. Applications that cross county boundaries should be sent to the district containing the primary work effort.
		Applications for dams regulated under Part 315 or from public agencies eligible to receive

federal and/or state transportation funding for a project involving public roadways, nonmotorized paths, airports, or related facilities should be mailed to: DEQ, WRD, P.O. BOX

30458, LANSING, MI 48909-7958.







Water Resources Division

517-284-5567

### **APPENDICES**

Appendix A:	Acronyms and Abbreviations	A-1
Appendix B:	Sample Drawings	
	General Instructions for all Drawings and Sample Site Location Maps	B-1
	Inland Lake Shore Protection	B-2
	3. Bulkhead/Seawall	B-2
	4. Pond Construction	B-3
	5. Floodplain Fill	B-3
	6. Wetland Boardwalk	B-4
	7. Dredging	B-4
	8. Driveway Across Wetland	B-5
	Residential Wetland Fill and Boardwalk Construction	B-5
	10. Docks - Piers - Mooring Piles	B-6
	11. Beach Sanding	B-6
	12. Pipe/Utility Crossings in a Trench	B-7
	13. Pipe/Utility Crossings using Directional Bore	B-7
	14. Bridge or Culvert (4 drawings)	
	15. Dam Construction	
×	16. Water Intake	
	17. Great Lakes Shore Protection	
	18. Maintenance Dredge Channel	
	19. Proposed Residence in a High Risk Erosion Area	
	20. Proposed Residence in a Critical Dune Area	B-14
	21. Marina Site Plan	
	22. Outlet Pipe	
	23. Temporary Logging Road Crossing	
Appendix C:	Fees and Categories for Minor Project and General Permit for Minor Activities	
Appendix D:	State Authority, Federal Authority, Privacy Act Statement, and State and Federal Penalties	
Appendix E:	Glossary (listed words are italicized in the application package)	E-1

Application status can be viewed on the Water Resources Division (WRD) website at www.deq.state.mi.us/CIWPIS. During the application period, if any information is missing from the application or if any clarification is needed regarding materials provided, the application is incomplete and staff will request the information from the applicant/agent by letter, email, fax or phone call. If a complete response is not provided within 30 days, the application will be closed. Some regulatory parts allow extensions if requested within the 30 day time frame. Once the WRD has received the information necessary for review of the project, including a thoroughly completed application, consistent drawings that have adequate detail for review and the full application fee, the file will be reviewed for final processing. A mailed postcard or a public notice will provide the file number and the telephone number of the office where the application is being processed. The review time to determine if an application is complete for processing ranges from 15 to 30 days. Technical processing times, after the application is administratively complete, may range from 60 to 90 days. Processing times will be longer if a public hearing is held. Staff from your local District/Field Office may visit the project site and may request additional information prior to a decision on the application. Application fees are not refundable or transferable.

If a federal permit will also be required, a copy of the permit application will be sent to the Detroit District Office, USACE, for processing at the federal level. Additional copies of this application form can be downloaded from the WRD website at www.mi.gov/jointpermit or can be photocopied from the original. If you have any questions about the permitting process or if you need to modify your application, you can contact the WRD by phone or fax at the addresses on the previous page, or email at DEQ-WRD-jointpermit@michigan.gov.





E C	Previous USACE File Number	ved		DEQ File Number						
AGENCY USE	USACE File Number	Date		Fee received \$						
□ All ite     □ Proje     □ Dime     □ All in     □ Map	Validate that all parts of this checklist are submitted with the application package. Fill out application and additional pages as needed.  ✓ All items in Sections 1 through 9 are completed.  ✓ Project-specific Sections 10 through 20 are completed.  ✓ Dimensions, volumes, and calculations are provided for all impact areas.  ✓ All information contained in the headings for the appropriate Sections (1-20) are addressed, and identified attachments (♣) are included.  ✓ Map, site plan(s), cross sections; one set must be black and white on 8 ½ by 11 inch paper; photographs.  ✓ Application fee is attached.									
1 P	1 Project Location Information For Latitude, Longitude, and TRS info anywhere in Michigan see www.mcgi.state.mi.us/wetlands/									
NAME AND ADDRESS OF	Address (road, if no street address)  GRAND RIVER AVE.	Zip Code 48375	Municipality (Township/Village/City) CITY OF NOVI	County OAKLAND						
	Tax Identification Number(s) 51-023 & 22-16-176-021	Latitude 4	2°29'24.25" N	Township/Range/Section (TRS)  T 1 N N or S; R 8 E E or W;						
Subdivis N/A	sion/Plat and Lot Number	Longitude - 83	<u>3°30′20. 21"</u> W	Sec <u>16</u> OR Private Claim #						
2 A	oplicant and Agent Information									
Owner/A	Applicant (individual or corporate name)		Agent/Contractor (firm name a	Agent/Contractor (firm name and contact person)						
Mailing	Address 46100 GRAND RIVER AVE.		Mailing Address	Mailing Address						
City NO	OVI State MI Zip	Code <b>48375</b>	City	State Zip Code						
Contact 248/348	Phone Number Fax 248/347-772	20	Contact Phone Number	Contact Phone Number Fax						
Email	BBOWMAN@SUBURBANSHOWPLACE	.сом	E-mail							
☐ No this pro	Yes Is the applicant the sole owner of ect?   If no, attach letter(s) of authorization	all property on on from all prope	which this project is to be construct erty owners including the owner of	red and all property involved or impacted by the disposal site.						
IA-ALLE SERVICE	y Owner's Name (If different from applicar BOWMAN	nt)	Mailing Address	Mailing Address						
Contact	Phone Number 248/207-8040		City	State Zip Code						
	roject Description		7							
Project COLLE	Name MICHIGAN STATE FAIR & SUBUI CTION SHOWPLACE EXPANSION	RBAN	Preapplication File Number – – –P							
Name o	f Water body WETLAND 7/C		Date project staked/flagged 06/09/16							
an in a por a street a leg Date a cha 500 f		□ a Great La □ a wetland □ a 100-year □ a dam □ a designate □ a designate □ a designate	e or Section 10 Waters							
SEWER	WITH END SECTION & RIP-RAP APROLL END SECTION & RIP-RAP APRON F	N FOR PROPO OR PROPOSEI	DSED PARKING LOT EXPANSION O DETENTION BASIN.	TALLATION OF 301 L.F. OF 24" STORM N. INSTALLATION OF 24" STORM SEWER						
UNSUIT	ction Sequence and Methods INSTALL 7 FABLE SOILS, PLACE FILL, INSTALL 24 RE ALL DISTURBED AREAS WITH TOP	" STORM SEV	ER AND PAVEMENT. INSTALL D	DETENTION BASIN & 24" OUTFALL.						

Joint Permit Application Page 1 of 15 EQP 2731 (Rev. 12/2013) U.S. Army Corps of Engineers <u>www.lre.usace.army.mil</u> Michigan Department of Environmental Quality <u>www.mi.gov/jointpermit</u>



2 Project Purpo	se, Use and Alternati	ves Attach	additional she	ets as nece	essary.		
	of the project and its inte		The second secon		The second second second	and the second s	Management of the Control of the Con
PROPOSED WETLAN COLLECTION SHOW	ID FILLING IS DESIRED	TO ACCOM	MODATE AN 17	5,815 S.F. E	XPAN	SION OF THE ADJACE	ENT SUBURBAN
COLLECTION SHOW	PLACE.						
	es considered to avoid o						
	gn, and construction tecl  G TO LEAVE THE PRO						
	IVE IMPACT TO THE E		LAND FILLING	AKEA UNDI	STORE	DED HOWEVER IT KES	SOLIEDINA
5 Locating Your	Project Site Attach	a legible bla	ck and white m	nap with a N	Vorth a	rrow.	
Names of roads of clos	sest intersection NORTH	SIDE OF GE	RAND RIVER AV	E. EAST OF	BECK	( RD.	
Directions from main in GRAND RIVER AVE.	ntersection to the project FROM BECK RD.	site, with dista	ances from the b	est and near	est visi	ble landmark and water	body EAST ALONG
Description of building	s on the site (color; 1 or 2	2 story, other)	Descri	ption of adja	cent lar	ndmarks or buildings (a	ddress; color; etc)
	GE SHOWPLACE BUIL					EBELL FORKLIFT, I	NC.
How can your site be i	dentified if there is no vis	ible address?	SUBURBAN C	OLLECTION	v shov	VPLACE SITE	
6 Easements an	d Other Permits						
□ No ☑ Yes Is ther	e a conservation easeme	ent or other ea	asement, deed re	estriction, lea	ase, or o	other encumbrance upo	on the property?
→ If yes, attach a cop	y. Provide copies of cou	rt orders and	legal lake levels	if applicable.			
List all other federal, in	terstate, state, or local a	gency authori	zations including	required as	surance	es for Critical Dune Are	a projects.
Agency	Type of Approval	Number		Applied		te approved /denied	Reason for denial
CITY OF NOVI	SITE PLAN						
CITY OF NOVI	S.E.S.C.						
7 Compliance							
If a permit is issued, w	hen will the activity begin	? (M/D/Y) 09	0/06/16	Propos	ed com	pletion date (M/D/Y) 1	2/06/16
	ny construction activity c						
	ortion(s) underway or co					ns and give completion	date(s).
	he regulated activities co	nducted unde	er a DEQ and/or	USACE perr	nit?		
→If Yes, list the permit		od violetiene	of on viscous to	l la au litia.a		-l. : II 1 O	
→ If Yes, attach explar	ou aware of any unresolv	ed violations	or environmenta	i law or litiga	tion inv	olving the property?	
8 Adjoining Pro		ovide curren	t mailing addre	esas Attac	h addi	tional sheets/labels f	or long lists
					auun		
☐ Established Lake B☐ Lake Association	oard Contact Person		Mailing Address			City	State and Zip Code
List all adjoining prope							
If you own the adjoining lot, provide the requested information for the first adjoining parcel that is not owned by you.							
Property Owner's Nam		Mailing				City	State and Zip Code
SERVMAN, LLC - BL		46100 0	RAND RIVER A	IVE		NOVI	MI 48375
SEE ATTACHED LIST							

Joint Permit Application

### **Suburban Collection Showplace Expansion Adjoining Property Owners**

Bell Realty
34660 Centaur

Clinton Township, MI 48035

ServMan, LLC 46100 Grand River Ave Novi, MI 48374

Frankfurth, James & Mary

PO Box 942 Novi, MI 48376

46153 Grand River Investors 3000 Town Center, Suite 530 Southfield, MI 48075

Lapham Investments Ltd Partnership 18412 Blue Heron Dr West Northville, MI 48168

Hoffman, Cynthia Trust 220 Al-Don Dr Pinckney, MI 48169

Anderson, Sheridan & Judith 46089 Grand River Ave Novi, MI 48374

Zdravkovski, Drakce 42558 Park Ridge Novi, MI 48375

Zdravkovski, Cvetko 24536 Kingspointe Novi, MI 48374

Paradise Properties, Inc. 23800 W. 8 Mile Rd Southfield, MI 48033 Schultz, Charles 2525 Country Club Ann Arbor, MI 48105

Varteresian, Harry & Robert M 45800 Grand River Novi, MI 48374

Novitel Corp. Attn: Jeffrey C. Stearns 28049 S. Wixom, #315 Wixom, MI 48393

Sidock Properties Novi, LLC 45650 Grand River Ave Novi, MI 48374

Demaria Building 45500 Grand River Ave Novi, MI 48376

LHTR Development, LLC 26650 Taft Rd Novi, MI 48376

Guardian Property Services, LLC 44375 Grand River Ave Novi, MI 48375

International Transmission Co 27175 Energy Way Novi, MI 48377



9 Applicant's Certification	n Read carefu	lly before signing.	1111					
I am applying for a permit(s) to authorize the activities described herein. I certify that I am familiar with the information contained in this application; that it is true and accurate; and, to the best of my knowledge, that it is in compliance with the State Coastal Zone Management Program. I understand that there are penalties for submitting false information and that any permit issued pursuant to this application may be revoked if information on this application is untrue. I certify that I have the authority to undertake the activities proposed in this application. By signing this application, I agree to allow representatives of the DEQ, USACE, and/or their agents or contractors to enter upon said property in order to inspect the proposed activity site before and during construction and after the completion of the project. I understand that I must obtain all other necessary local, county, state, or federal permits and that the granting of other permits by local, county, state, or federal agencies does not release me from the requirements of obtaining the permit requested herein before commencing the activity. I understand that the payment of the application fee does not guarantee the issuance of a permit.								
<ul><li>☑ Property Owner</li><li>☐ Agent/Contractor</li><li>☐ Corp. or Public Agency / Title</li></ul>	Printed Name BLAIR BOWMAN	Signature,	06/17/16					





10 Projects Impacting Inland Lakes, Streams, Great Lakes, Wetlands or Floodplains							
Complete only those sections A through M applic	able to	our proje	ct.				
If your project impacts wetlands also complete Se	ection 12	2. If your	project imp	acts regulated	floodplains	also cor	mplete Section 13.
To calculate volume in cubic yards (cu yd), multiply the average length in feet (ft) times the average width (ft) times the average depth (ft) and divide by 27. Example: (25 ft long x 10 ft wide x 2 feet deep) / 27 = 18.5 cubic yards							
Some projects on the Great Lakes require an appropriate to the control of th	olication	for conve	yance pric	r to Joint Perm	t Application	n compl	eteness.
⇒Provide a black and white overall site plan, with o	cross-se	ction and	profile dra	wings. Show ex	disting lakes	s, stream	ns, wetlands, and other water
features; existing structures; and the location of all promeasures. Review Appendix B and EZ Guides for aid	in provi	ding com	plete site-	specific drawing	S. ·		
→ Provide tables for multiple impact areas or multip	le activi	ties such	as multiple	fill areas or m	ultiple culve	rts. Inclu	ude your calculations.
Water Level Elevation		01		1 (1 (6)			(14/200)
On inland waters NGVD 29 NAVD 88 On a Great Lake IGLD 85 surveyed	other					e of obse	ervation (M/D/Y) 06/09/16
A. PROJECTS REQUIRING FILL (See All Sample)			userveu si	ili water elevati	JII.		
<ul> <li>→Attach a site plan and cross-section views to sca</li> <li>→ For multiple impact areas on a site provide a tab</li> </ul>	le showi	ing maxin					ions.
Purpose Dioengineered shore prote		boat		□ boat well		dge or cu	ulvert
	SCHOIT		• • • • • • • • • • • • • • • • • • • •				
⊠ riprap		seav		swim are			KING LOT EXPANSION
Dimensions of fill (ft)  Length 312' Width 25' Maximum Depth 8'		Total vo	lume (cub .Y.	c yards)	Volum NONE		OHWM (cubic yards)
Maximum water depth in fill area (ft) NONE		Area fill	ed (sq ft) 6	,103 S.F.			be used under proposed fill? (If Yes, type)
Fill will extend 0 feet into the water from the shoreline	and upla	and 30 fe	et out of th	e water.			
Type of clean fill ☐ peastone % ☒ sa	nd	% 🔲 g	ravel	% 🛛 other	RIP-RAP		
Source of clean fill				ation on site pl cription of loca			
□ B. PROJECTS REQUIRING DREDGING OR EXC	AVATIO	ON (See S	Sample Dr	awings)			
<ul> <li>Refer to <u>www.mi.gov/jointpermit</u> for spoils disposa</li> </ul>	al and au	uthorizatio	n requirer	nents.			
Attach a site plan and cross-section views to scale							
⇒For multiple impact areas on a site provide a table	The state of the s		ensions a	20.00		e/excav	ation area.
Purpose	☐ bo	at well		D bridge or cu	lvert	mai	ntenance dredge
navigation	ро	nd/basin		other other			
Dimensions (ft)			Tota	l volume (cu yo	s)	Volume	e below OHWM (cu yds)
Length Width Maximum Depth							•
Has this same area been previously dredged?		Yes	If Yes,	orovide date ar	de date and permit number:		
Will the previously dredged area be enlarged?	☐ No	☐ Yes	If Yes,	when and how	much?		
Is long-term maintenance dredging planned?	☐ No	☐ Yes	If Yes,	now often?			
Dredge or Excavation Method  Hydraulic  Me	echanica	al 🔲 oth	ner				
Dredged or excavated spoils will be placed	d 🔲 or	n-site 🔲	landfill [	USACE confi	ned dispos	al facility	other upland off-site
த हिं For disposal, provide a ⇒Detailed spoils d	isposal	area loca	tion map a	nd site plan wit	h property	ines.	
For disposal, provide a Detailed spoils d  Letter of authoric	zation fr	om prope	rty owner	of spoils dispos	al site, if di	sposed o	off-site.
For volumes less than 5,000 cu yards, has  ☐ No ☐ Yes →If Yes, provide test rest					contamina	nts withi	n the past 10 years?
C. PROJECTS REQUIRING RIPRAP (See Sample							
Riprap water ward of the ordinary high water mark: dimensions (ft) length width depth Volume(cu yd)							
Riprap landward of the ordinary high water mark: dim	ensions	(ft) len	gth 13'wi	dth 14' depth	6" X 2 AP	RONS	Volume(cu yd) 7
Type and size of riprap (inches)					one be use	d under	proposed riprap?



		ECTS (See EZ Guides and Sam lude the list of native plants/seed	No. of Contract			Sect	ions 10A, B, ar	nd/or C.)
	bioengine			valiable	riprap (ft)		seawall/bu	ılkhead (ft)
_		replacement of an existing str	ucture		Will the existing structure	e be		
Proposed Toe Stone (line	ear feet)				Distance of project from	adja	cent property li	ines (ft)
Distance of project from a	an obvious fi	ixed structure (example - 50 ft fr	om SW	V corne	r of house)			
For bioengineering project	ts indicate t	the structure type   brush bun	dles [	oir le	og 🔲 live stakes 🔲 tre	e rev	etment 🔲 oth	er
The second secon		LINGS (See Sample Drawing 10	75					
12.22		gal description, mortgage survey						
Dock Type			100		spring piles pilir			
Is the structure within the	applicant's	riparian area interest area?	No 🔲	Yes	⇒Show parcel property	lines	on the site pla	n.
Proposed structure dimer				Use	private public	: [	commercial	
Dimensions of nearest ac	ljacent struc	ctures (ft) length width		Distan	ce of dock from adjacent	prop	perty lines (ft)	
F. BOAT WELL (See	EZ Guide. (	Complete Sections 10A and 10E	3)					
Dimensions (ft) length	width	depth		Numbe	er of boats			
Type of sidewall stabiliza	Type of sidewall stabilization							
Volume of backfill behind	sidewall sta	abilization (cu yd)		Distan	ce of boat well from adjac	cent	property lines	(ft)
G. BOAT RAMP (See	EZ Guide.	Complete sections 10A, 10B, a	nd 10C	for ma	attress and pavement fill,	dred	lge, and riprap)	)
Type new c	existing	] maintenance/improvement		Use ☐ private ☐ public ☐ commercial				
Existing overall boat ramp	o dimension	ns (ft)	7	Туре о	of construction material			
length width	depth				crete  wood stor			
Proposed overall ramp di length width	mensions (f depth	ft)		Propos length	sed ramp dimensions (ft) width dep		w ordinary high	n water mark
Number of proposed skid piers	1	d skid pier dimensions (ft) width		Distance of ramp from adjacent property lines (ft)				
☐ H. BOAT HOIST – RO							-	
Type	de lifter 🔲	other		Locate	ed on  seawall		dock	bottomlands
Hoist dimensions, includi	ng catwalks	(ft) length width						
Area occupied, including	cat walks (s	sq ft)		Distan	ce of hoist from adjacent	pro	perty lines (ft)	
Permanent Roof  No	☐ Yes				num Roof Dimensions (ft)			h height
If Yes, how is the ro								
		WETLANDS or FLOODPLAIN dwalks and decks proposed in o						and/or 13)
THOUGH A LABIC TOT II	Wetlan		le pro	Ject, III	Floo	100	1.48	
Boardwalk  on pilings		Deck on pilings on fill	Boa	ardwalk	on pilings on fill		Deck on p	oilings on fill
Dimensions (ft)		Dimensions (ft)	100	nension	And the second case		Dimensions (	
length width		length width	leng	gth	width		length	width
J. INTAKE PIPES (See	Sample Dr	rawing 16) or OUTLET PIPES (	See Sa	ample D	Drawing 22)			
If outlet pipe, discharge is	to 🔲 inlan	nd lake  stream, drain or rive	er 🔲 ov	verland	d flow 🔲 Great Lake 🛭	] we	tland 🔲 othe	er
8 A A		rs and invert elevations			pe discharge below the			No □ Yes
2 2	E.S. INV.	. 963.02 & 960.63			vater treated before disch			☑ No ☐ Yes
Type 🔲 headwall 🛛 e	Type ☐ headwall ☒ end section ☐ other				Dimensions of headwall OR end section (ft) length 6' width 4' height 2' (BOTH E.S.)			

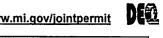


<ul> <li>■ K. MOORING and NAVIGATION BUOYS (See EZ Guide for Sample Drawing)</li> <li>⇒ Provide a site plan showing the distances between each buoy and from the shore to each buoy, and depth (ft) of water at each location.</li> <li>⇒ Provide cross-section drawing(s) showing anchoring system(s) and dimensions.</li> </ul>							
Purpose o			vimming	other			
Number of buoys		in length	Boat Lengths	Type of anchor system			
Buoy Loc	000 P 0000 C	W. → Provide a table	for multiple buoys.				
Do you ov	wn the property along the shoreline? ☐ No ☐ Yes →	If No, attach an autho	rization letter from t	he property owner(s).			
Do you ov	wn the bottomlands? □ No □ Yes →	If No, attach an autho	rization letter from t	he property owner(s).			
	NCES  vide an overall site plan showing the proposed fencing through streativide a drawing of fence profile showing the design, dimension, post		· Control of the cont	to bottom of fence.			
Purpose of fence	of Airport Cervidae Livestock	Residentia	☐ Security	☐ Other			
Total leng	oth (ft) of fence through wetlands floodplains	ence height (ft)	Fence type and r	naterial			
M. OT	THER - e.g., structure removal, maintenance or repair, aerator, dry soil borings, or survey activities.	fire hydrant, gold pros	pecting, habitat stru	ctures, scientific measuring			
	description, dimensions and volumes. Complete Sections 10A-C as	s applicable.					
⇒Com	nsion of an Existing or Construction of a New Lake or P nplete Section 10J for outlets and Section 17 for water control struct vide elevations, cross-sections and profiles of outlets, dams, dikes, ies.	tures.		pillways to nearest water			
and the second s	st describes your proposed water body use (check all that apply)    recreation   storm water retention basin   wastewater basely	asin 🗌 wildlife 🔲 o	ther				
Water sou	urce for lake/pond dwater	n water runoff 🔲 pu	mp 🔲 sewage [	other			
Location	of the lake/basin/pond	ream (inline) 🔲 up	land				
Maximum length	dimensions (ft)  width depth  Maximum Area	: acres sq ft					
Has the th	nere been a hydrologic study performed on the site?	□ No □ Yes	→ If Yes, provide a	сору.			
Has the D	DEQ conducted a wetland assessment for this parcel?	□ No □ Yes	→ If Yes, provide a	copy or WIP number:			
Has a pro	Has a professional wetland delineation been conducted for this parcel? ☐ No ☐ Yes ☐ Yes.						
Spoils Disposal	Dredged or excavated spoils will be placed ☐ on-site ☐ landfill ☐ USACE confined disposal facility ☐ other upland off-site  For disposal, provide a → Detailed spoils disposal area location map and site plan with property lines.  Letter of authorization from property owner of spoils disposal site, if disposed off-site.						



Activities That May Impact Wetlands (See Sample Drawings 8 & 9). Complete other Sections as applicable.  Locate your site and wetland information with the DEQ Wetlands Map Viewer at <a href="www.mcgi.state.mi.us/wetlands/">www.mcgi.state.mi.us/wetlands/</a> For information on the DEQ's Wetland Identification Program (WIP) visit <a href="www.mi.gov/wetlands">www.mi.gov/wetlands</a> Provide a detailed site plan with labeled property lines, upland and wetland areas, and dimensions and volumes of wetland impacts.  Provide a detailed site plan with labeled property lines, upland and wetland areas, and dimensions and volumes of wetland impacts.  Attach tables for multiple impact areas or activities.  Attach at least one cross-section for each wetland dredge and/or fill area; show wetland and upland boundaries on the cross-section.  Has the DEQ conducted a wetland assessment for this parcel?  No Yes  If Yes, provide a copy with data sheets  Is there a recorded DEQ easement on the property?  No Yes  If Yes, provide the easement number  Did the applicant purchase the property before October 1, 1980?								
		purchase the property before October 1, 19 mechanized land clearing proposed?	100 !	□ No □ Yes	→ If Yes, provide docume → If Yes, label the location			
		pposed grading or mechanized land clearing	a been	Table 1	→ If Yes, label the location			
complet	ted?			⊠ No ☐ Yes	→ If Yes, label the location	- 11		
Propose	ed Activity	boardwalk or deck (Section 10I)	☐ bridges and (Section 14)	culverts	designated environme	ental area		
		dewatering	draining sur	face water	driveway / road			
		fences (Section 10L)		е	restoration			
		septic system	stormwater (Section 10J)	discharge	☑ other STORM SEWE	ER .		
FILL ma		Dimensions maximum length (ft) 312' maximum width (ft) 30'	Area ⊠ acres ⊠ sq ft 0.14 AC. 6,103 S.F.		Average depth (ft) 7	Volume (cu yd) 1,170		
DREDG	SE.	Dimensions maximum length (ft) maximum width (ft)	Area ☐ acres ☐ sq ft		Average depth (ft)	Volume (cu yd)		
Spoils Disposal		d or excavated spoils will be placed ☐ on- osal, provide a → Detailed spoils disposa → Letter of authorization	I area location m	ap and site plan wit				
Septic System	🔀 publi	c sewer  private septic system	the County Heal	th Department?	d, has an application for a No ☐Yes No ☐ Yes ➤ Provide			
Describe the wetland impacts, the proposed use or development, and the alternatives considered:  0.14 AC. IMPACTED WETLANDS AREA BELIEVED TO BE OF MINIMAL HYDROLOGIC & ECOLOGICAL VALUE DUE TO ITS SIZE & DITCH CONFIGURATION. CONSIDERATION WAS GIVEN TO LEAVING THE WETLAND AREA UNDISTURBED, HOWEVER IT RESULTED IN A SIGNIFICANT NEGATIVE IMPACT TO THE EXPANSION.								
1111		mpact more than 1/3 acre of wetland?		and the second				
		a Mitigation Plan with the type and amount of acts to waters of the United States will be a			ormation go to <u>www.mi.gov</u>	<u>v/wetlands</u>		
ANY NEGATIVE IMPACTS WILL BE MINIMIZED THROUGH THE USE OF BOTH TEMPORARY AND PERMANENT SOIL EROSION CONTROL MEASURES.								
for the p	roposed in	impact to waters of the United States will b mpacts. Y MITIGATION SHOULD NOT BE REQUI			compensatory mitigation sh	nould not be required		

U.S. Army Corps of Engineers <u>www.lre.usace.army.mil</u>	Michigan Department of Environmental Quality www
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Joint Permit Application





- Floodplain Activities (See Sample Drawing 5 and others. Complete other applicable sections.)
- For more information go to www.mi.gov/floodplainmanagement. This site also lists the projects and requirements for an expedited floodplain review under "Expedited Review Information for Minor Floodplain Projects."
- Examples of projects proposed within the non-floodway portions of the 100-year-floodplain which may qualify for an expedited review: Open pile decks and boardwalks; residences, commercial/industrial facilities, garages and accessory structures; parking lots; pavilions, gazebos, large community playground structures; residential swimming pools
- Examples of projects proposed within the floodway portions of the floodplain which may qualify for an expedited review: Open pile decks and boardwalks, (non-enclosed) that are anchored to prevent floatation and that do not extend over the bed and bank of a watercourse; parking lots constructed at grade or resurfacing that is no more than 4 inches above the existing grade; dry hydrants that do not require fill placement; scientific structure such as staff gauges, water monitoring devices, water quality testing devices, and core sampling devices which meet specific design criteria and fish structures that meet specific design criteria.
- For expedited review include:
  - Photographs of the work site labeled to identify what is being shown and with the direction of the photo clearly indicated. Include photographs of any river or stream adjacent to the project.
  - A letter or statement from the local unit of government acknowledging your proposed application. See the website for sample wording.
- · A hydraulic analysis or hydrologic analysis may be required to fully assess floodplain impacts.
- The state building code requires an Elevation Certificate for any building construction or addition in a floodplain. A sample form can be found at www.fema.gov/nfip/elvinst.shtm.
  - Attach additional sheets or tables for multiple proposed floodplain activities and provide hydraulic calculations.

731	Show reference datum used on plans.							
Propose	ed Activity	excavation or cut	100-	00-year floodplain elevation (ft) (if known)				
	othe	er	Datum NGVD 29 NAVD 88 other					
Site is	feet above  ordinary high	n water mark (OHWM) OR 🔲	observ	ved water level. Date of observati	ion (M/D/Y)			
Fill volu	The state of the s			npensating cut volume below the 1	100-year floodplain elevation			
	Type of construction is resid	dential						
	Construction is new add	lition AND Serviced by	public	sewer private septic oth	ner			
	Lowest adjacent grade (ft): exist datum	sting proposed  NAVD 88  other						
sus	Existing Structure Information			Proposed Structure Information				
ditio	Foundation type	☐ basement		Foundation type	☐ basement			
Ado	concrete slab on grade	pilings		concrete slab on grade	pilings			
ō	crawl space	other		crawl space	other			
and	Foundation floor elevation (ft)			Foundation floor elevation (ft)				
Buildings and/or Additions	Height of crawl space/basement from finished foundation floor to bottom of floor joists (ft)			Height of crawl space/basement from finished foundation floor to bottom of floor joists (ft)				
n in	Elevation of 1st floor above basement floor/crawl space (ft)			Elevation of 1st floor above basement floor/crawl space (ft)				
В	For enclosed areas below the flood elevation, such as a crawl space, garages and accessory structures:							
	Area of proposed foundation (s	q ft)						
	Elevation of proposed enclosed	l area (ft) datum 🔲 N	NGVD	29 NAVD 88 other				
	Number of flood vents net opening of each vent (sq inches) lowest elevation of flood vents (ft)							

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4 B	ridges and Culverts Including Foot and Cart Bridges. (See EZ Guides and Sample Drawings 5, 14	A, 14B, 14C, 14D.)							
. (	Complete other applicable Sections, including 10A-C.								
. A	<ul> <li>A hydraulic analysis or hydrologic analysis may be required to fully assess impacts. ⇒Attach hydraulic calculations.</li> </ul>								
High Water Elevation - describe reference point and highest known water level above or below reference point and date of observation.									
	Attach additional sheets for multiple bridges and/or culverts.								
	⇒Provide detailed site-specific drawings of existing and proposed Plan and Elevation View at a scale adequate for detailed review.								
	Provide all information in the boxes below; do not write in a reference to plan sheets. Show reference	e datum used on plan	S.						
	The site has a high water elevation (ft) ☐ above or ☐ below the Reference Point of	Date observed							
_	Reference datum used NGVD 29 NAVD 88 IGLD 85 (Great Lakes coastal areas)	other							
Stream Information		pstream							
Jat	any ponding or scour holes around the structure								
n C		ownstream							
nfc	Cross-sectional area of primary channel (sq ft) (See Sample Drawing 14C for more inform	ation)							
=	The width of the stream where the water begins to overflow its banks. Bankfull width (ft)								
eal	The invert of the stream 100-feet from structure (ft)	Upstream							
Str		_							
•		Downstream							
	Is the existing culvert perched?  No Yes If Yes, provide a profile of the channel bottom at	the high and low poin	ts for a distance of						
	200 feet upstream and downstream of the culvert.	T							
	Complete this form for each bridge / culvert location.	Existing	Proposed						
	Number of bridge spans								
	Bridge type (concrete box beam, concrete I-beam, timber, etc.)								
Ф	Bridge span ( length perpendicular to stream) (ft)								
Bridge	Bridge width (parallel to stream) (ft)  Bottom of bridge beam (ft)  Upstream								
Bri	Bottom of bridge beam (ft)  Upstream  Downstrea								
_	Stream invert elevation at bridge (ft)  Upstream	111							
	Downstrea	m							
	Bridge rise from bottom of beam to streambed (ft)								
	Number of culverts								
	Culvert type (arch, bottomless, box, circular, elliptical, etc.)								
	Culvert material (concrete, corrugated metal, plastic, etc.)								
	Culvert length (ft)								
vert	Culvert  width diameter (ft)								
Cul	Culvert height prior to any burying (ft)								
O	Depth culvert will be buried (ft)								
	Elevation of culvert crown (ft)  Upstream								
	Downstrea	m							
	Higher elevation of ☐ culvert invert OR ☐ streambed within culvert (ft) Upstream								
	Entrance design (mitered, projecting, wingwalls, etc.)	m							
75	Total structure waterway opening above streambed (sq ft)								
ano	Total structure waterway area below the 100-year elevation (sq ft) (if known)								
Ses	Elevation of road grade at structure (ft)								
ij	Elevation of low point in road (ft)								
rts	Distance from low point of road to mid-point of bridge crossing (ft)								
or both B Culverts	Length of approach fill from edge of bridge/culvert to existing grade (ft)								
Complete for both Bridges and Culverts	A Licensed Professional Engineer may certify that your project will not cause a harmful interference and including the 100-year flood discharge. The "Required Certification Language" is found under documents" link from the <a href="https://www.mi.gov/jointpermit">www.mi.gov/jointpermit</a> page or a copy may be requested by phone, em supporting this certification may also be required.  Is Certification Language attached?   No  Yes	"forms" on the "maps	forms and						



15 Str	eam, River, or Drain Construction, F	Relocation and Enclosure A	Activities			
150	plete Section 10C for riprap activities.					
	de casting or other proposed activities will in	nnact wetlands or floodolains or	omplete Sections 1	2 and 13 respectively		
				atures; existing structures; and the location of		
	roposed structures and land change activiti		and other water lea	attices, existing structures, and the location of		
	ovide scaled cross-section (elevation) draw		existing and propos	sed conditions.		
	or activities on legally established county dra					
		GVD 29 NAVD 88 II IGLD	., .,			
E io	→ Show elevation on plans with descri		oo (Orout Lance o	odotal diodo) 🗀 otilol		
ear						
Stream	Dimensions (ft) of existing stream/drain	channel (ft) length	width	depth		
=	Existing channel average water depth in	a normal year (ft)				
Propos	sed Activity	ent 🔲 maintenance 🔲 new o	drain  relocation			
If an e	nclosed structure is proposed, check mater	rial type 🛛 concrete 🔲 corrug	ated metal 🗵 plas	tic other		
Dimen	sions (ft) of the structure: diameter 24"	length 301'	Volume of fill (cu	yds) 1,170 C.Y.		
Will old	d/enclosed stream channel be backfilled to	top of bank grade? 🔲 No 🛛 Y	'es			
Length	of channel to be abandoned (ft) 312'		Volume of fill (cu	yds) 1,170 C.Y.		
	sions (ft) of improved, maintained, new, rele	ocated or wetland stream/drain	Volume of dredge	e/excavation (cu yds)		
channe	Turks					
length	width depth					
How w	ill slopes and bottom be stabilized?		Proposed side sl	lopes (vertical / horizontal)		
=						
osso	Dredged or excavated spoils will be place					
Spoils Disposal	For disposal, provide a Detailed spoils disposal area location map and site plan with property lines.					
	⇒ Letter of a	uthorization from property owne	er of spoils disposal	site, if disposed off-site.		
	L					
16 Dr	awdown of an Impoundment					
• If w	etlands will be impacted, complete Section	12.				
Type o	f drawdown  over winter temporary	□ one-time event □ annual e	vent nermanen	t (dam removal)  ather		
		one time event annual e	vent permanen	t (dain removal) Dutier		
	n for drawdown					
	ere been a previous drawdown? No	Yes		Previous DEQ permit number, if known		
If Yes	provide date (M/D/Y)					
Does v	vaterbody have established legal lake level	? No Yes Not Sure		Dam ID Number, if known		
Extent	of vertical drawdown (ft)	Impoundment design head (ft	t)	Number of adjoining or impacted property owners		
Date d	rawdown would start (M/D/Y)	Date drawdown would stop (N	M/D/Y)	Rate of drawdown ( ft/day)		
Date re	efilling would start (M/D/Y)	Date refill would end (M/D/Y)		Rate of refill (ft/day)		
Type o	f outlet discharge structure to be used face  bottom  mid-depth	Impoundment area at normal water level (acres)		Sediment depth behind impoundment discharge structure (ft)		

Joint Permit Application



For more information or     → Attach der     → Part 315 Dar	mation go to www.mi. n removing a dam is a tailed signed and seal m Safety application f	gov/damsafety. If we vailable at www.mi.go ed engineering plans ees are added to all of	tland ov/da for a other	Is will be impacted msafety and follo Part 315 dam repapplication fees.	d, con wing pair,	ee Sample Drawing 15) complete Section 12. g the Related Link –Dam Management. dam alteration, dam abandonment, or dam removal. 458, LANSING, MI 48909-7958, attention Dam Safety	<i>(</i> .
Proposed Activity	/ abandonme	nt 🔲 a	Iterat	tion		enlargement of an existing dam	
	removal	□ re	epair			reconstruction of a failed dam	
	new dam co	onstruction	ther				
Dam ID Number,	if known	Type of outlet dis	schai	rge structure	surfa	ace Dottom mid-depth	
Will proposed ac	tivities require a drawd	down of the waterbod	y to	complete the work	[</td <td>☐ No ☐ Yes → If Yes, complete Section 16.</td> <td></td>	☐ No ☐ Yes → If Yes, complete Section 16.	
Structural height	(difference between e	mbankment top elev	ation	and streambed e	levat	tion at downstream embankment toe) (ft)	
	(difference between constream embankment		and	streambed	lm	npoundment size at design flood elevation (acres)	
Does dam meet surface acres or	the criteria for regulati more) 🔲 No 🔲 Yes	on under Part 315? (i	.e. h	ydraulic height of	6 fee	et or more and an impoundment size at the design flo	od of 5
Dredging/excava	tion volume (cu yd)	Fill v	olum	ne (cu yd)		Riprap volume (cu yd)	
If Yes, describe h		ill be controlled throu	gh th	e dam construction		rea during the proposed project activities:	
For Part 315 regitives Site-specific cuntil the project has A description A description the creation of the	as been determined t and evaluation of the of the natural resource	ving must be attached dam for resource in the best permitable). Hoss of natural resources that are associated	d: npact rces a d with	review (An engin associated with the n or created by the	eerir e pro e imp	ng report and detailed engineering plans are not requi oject. poundment and how they offset the natural resources	
Embankment dimensions	length (ft)	top width (ft)	bo	ottom width (ft)		slopes Upstream (vertical / horizontal) Downstream	
Have soil borings	been taken at dam lo	cation?		□ No □ Yes		→ If Yes, attach results.	
Do you have flow the design flood of	rage rights to all propo elevation?	sed flooded property	at	□ No □ Yes		If No, provide a letter of authorization from the propowner.	perty
Applications for F	art 315 regulated dan	n removal projects m	ust a	lso include the fol	lowir	ng:	- 20 304
An evaluation of the A description of the A	the capacity of the ren the quantity and qualit he methods to be emp of all known existing ar	y of the sediments be	ehind ment	the impoundments.		f the project.	



<ul> <li>Utility Crossings (S</li> <li>If side casting is propose</li> <li>Attach additional shee</li> <li>For wetland crossings</li> </ul>	ed, complete Sections its or tables with the re	10A and 10B equested infor	. If spoils mation as	will be placed in needed for multi	ple crossings.		n 12.	
Crossing of  Inland Lak	e or Stream  floodp	lain 🔲 Great	Lake 🔲	wetlands (also co	mplete Section 1	12)		
What method will be used	to construct the cross	ings? 🔲 dire	ctional bo	ring	bore 🔲 open tr	rench 🔲 plow / kn	ife 🔲	flume
Utility Type	Number of lake or stream crossings	Number of crossir		Pipe diameter with casing (in)	Pipe length per crossing (ft)	Distance below streambed or wetla		Trench width (ft)
sanitary sewer								
storm sewer								
watermain								
_ cable								
electric								
fiber optic cable								
oil/gas pipeline								
Marina Constructio  For more information go  Marinas located on the Coplace structures on the bidetermined complete.  Fully complete Section  Fully complete Section  Functions a copy of any  Attach a copy of the proposed project will advantated adjoining riparial	to www.mi.gov/marin.  Great Lakes, including cottomlands. If a convent of the con	Lake St. Clai reyance is neo tructures prov- eement with a on, mortgage rea (RIA) estin or rights. Includ- opplication.	r, may be cessary, a ide a table another ma survey, or nate surve	required to secur n application muse with the request arina facility, if on a property bound by, sealed by a lice	re leases or convert be submitted by ted information. It is sanitary purificary survey to you sensed surveyor.	mp out facilities are our application.	not ava	lication can be
Proposed Marina Activity	☐ New constru	uction		Expansion		Reconfigura	tion	
Do you have an existing Gi			☐ Yes	For more inform	ation visit www.n	ni.gov/deqgreatlake	<u>S</u> .	
Are sanitary pump-out facil	ities available?   No	☐ Yes	Is there a	pump out agree	ment? No	Yes If Yes, provide	e a cop	y.
None beautiful and all all all all all all all all all al	Marina Descrip		100.7		Current	Count	Final	Count
Number of boat slips/wells		side dockage	or moorin	g buoys)				
Lineal feet of broadside doo Maximum number of boats		<u> </u>						
Number of mooring buoys		•						
Number of launch ramps/la	nes							



### Critical Dune Areas and High Risk Erosion Areas (See Sample Drawings 19 and 20)

### Critical Dune Areas (See Sample Drawing 20)

- · Although not required, submitting PHOTOGRAPHS of the site may provide for a faster application review.
- For more information go to www.mi.gov/jointpermit, select "Sand Dune Protection" under "Related Links."
- All property boundaries and proposed structure corners, including decks, septic systems, water wells, driveways, grading, and terrain alteration locations must be staked before the WRD site inspection.
- · Scaled overhead and cross-section plans must include all property boundaries, locations, and dimensions of all existing structures and impacted areas, and all proposed structures, terrain alterations, and construction access. Cross-sections must show existing and proposed grades, including foundations.
- · Construction in critical dune areas on slopes greater than 33 percent (1 vertical: 3 horizontal) is prohibited without a special exception.
- . Construction in critical dune areas on slopes that measure from 25 percent (1 vertical: 4 horizontal) to less than 33 percent requires sealed plans prepared by a registered architect or licensed professional engineer.

### High Risk Erosion Areas (See Sample Drawing 19)

For more information go to www.mi.gov/jointpermit, select "HREA" under "Related Links."

- All property boundaries, proposed structure corners, and septic system locations must be staked before the WRD site inspection.
- · Scaled overhead plans must include all property boundaries, and the location and dimensions of all structures and septic systems must be
- Additional information, including the building construction plans, may be required to complete the application review.

Parcel dimensions (ft) width depth	Date project staked (M/D/Y)					
Property is a platted lot unplatted parcel	Year current property boundaries created					
Dune habitat present in Building Site and access route (check all th Bare Sand Lakefront Lot MNFI Community if known:						
Type of construction activities ☐ addition ☐ driveway ☐ garage	e  new home  renovation  septic  deck(s)  other					
☐ Provide a sand relocation plan with location and dimensions of data on-site show location and how the disposal site will be accessed on the dis						
	ting the project complies with Part 91 (Soil Erosion and Sedimentation					
The proposed project will be serviced by ☐ public sewer ☐ private on the plans, show the location and dimensions of the private se	ptic system.					
If a private septic system is proposed, has a permit been issued by						
If Yes, provide a copy of the permit for all Critical Dune Area proj	ects.					
<ul> <li>□ Provide a copy of the vegetation assurance letter.</li> <li>□ Provide a re-vegetation plan, including # of trees to be removed and # of trees to be replanted.</li> </ul>						
Proposed Utility Installation	Proposed New Construction					
Utility Installation Method	Foundation type					
directional bore plowing in	□ concrete slab □ pilings					
open trench other	□ crawl space □ other					
⇒Show utility locations and dimensions on the site plan.	Area of existing structure (sq ft)					
190 - Common Service 190 - 190	Area of proposed structure (sq ft)					
	Area of existing deck (sq ft)					
	Area of proposed deck (sq ft)					
Provide the following information for special use projects:  (a) Lot size, width, density, and front and side setbacks.  (b) Storm water drainage that provides for disposal of draina (c) Methods for controlling erosion from wind and water.	age water without serious erosion.					

Joint Permit Application

(d) Re-stabilization plan.

(e) Environmental Impact Statement.

Critical Dune Areas





Eλ	m	C-3
НΉ	No.	
ш	尼	9.1
	D	DE

Parcel dimensions (ft) width depth	Date project staked (M/D/Y)						
Existing Structure Information	Proposed New Construction						
Foundation type	Foundation type						
concrete slab pilings	concrete slab pilings						
crawl space other	crawl space other						
Material above foundation wall	Material above foundation wall						
□ block □ log □ stud frame □ other	□ block □ log □ stud frame □ other						
Siding material	Siding material						
□ block □ vinyl □ wood □ other	□ block □ vinyl □ wood □ other						
Area of the foundation, excluding attached garage (sq ft)	Area of the foundation, excluding attached garage (sq ft)						
Area of the garage foundation (sq ft)	Area of the garage foundation (sq ft)						
If renovating or restoring an existing structure, indicate the renovation or restoration cost \$							
Current structure replacement value \$							
Tax assessed value of existing structure excluding land value \$ Assessment Year  Provide the number of individual living units in the proposed building							
	Existing Structure Information  Foundation type						

Joint Permit Application

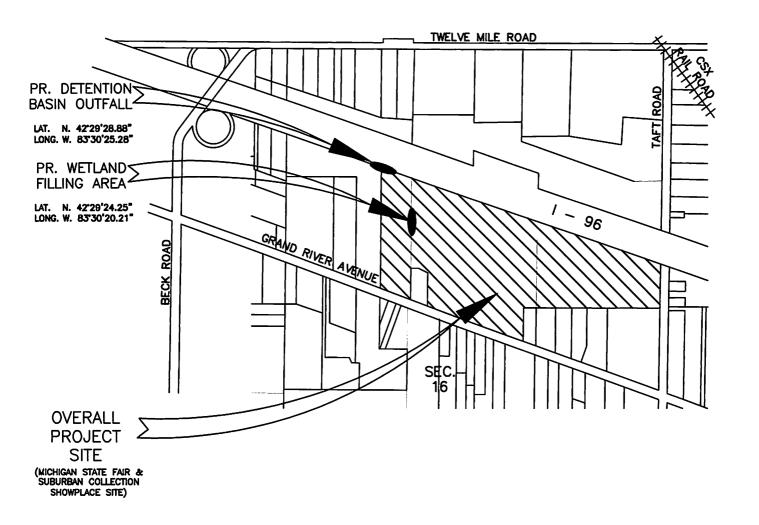
Page 15 of 15

### WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

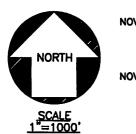
Project/Site: Michigan State Fair Grounds	City/County: Oakland	Sampling Date: 6/12/2015
Applicant/Owner: TBON, LLC		State: MI Sampling Point: D4
Investigator(s): Woody Held	Section, Township, Rang	e: 16, T1N, R8E
Landform (hillside, terrace, etc.): dtich	Local relief (concave, conve	
	<del></del>	g: -83.5056 Datum:
Soil Map Unit Name: Metea loamy sand, 0 to 6 percer		NWI classification: PEM
Are climatic / hydrologic conditions on the site typical f	· —	<del></del> `
Are Vegetation, Soil, or Hydrology _		mal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology _	naturally problematic? (If neede	d, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site n	nap showing sampling point lo	cations, transects, important features, etc
Hydrophytic Vegetation Present? Yes X	No Is the Sampled Are	
Hydric Soil Present? Yes X   Wetland Hydrology Present? Yes X		Yes X No
		and site io.
Remarks: (Explain alternative procedures here or in	а ѕерагате героп.)	
HYDROLOGY		
Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required: chec	k all that apply)	Surface Soil Cracks (B6)
X Surface Water (A1)	Water-Stained Leaves (B9)	Drainage Patterns (B10)
X High Water Table (A2)	Aquatic Fauna (B13)	Moss Trim Lines (B16)
X Saturation (A3)	Marl Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1)	_ Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C8)
Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots	
Drift Deposits (B3)	Presence of Reduced Iron (C4)	Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6	·
tron Deposits (B5) Inundation Visible on Aerial Imagery (B7)	Thin Muck Surface (C7) Other (Explain in Remarks)	Shallow Aquitard (D3)
Sparsely Vegetated Concave Surface (B8)	_ Other (Explain in Remarks)	Microtopographic Relief (D4)  X FAC-Neutral Test (D5)
Field Observations:		A FAC-Neutral Test (D5)
Surface Water Present? Yes X No	Depth (inches): 1	
Water Table Present? Yes X No		
Saturation Present? Yes No	- · · · · —	nd Hydrology Present? Yes X No
(includes capillary fringe)		103_X 100
Describe Recorded Data (stream gauge, monitoring v	vell, aerial photos, previous inspections), if	available:
Remarks:		
•		

	Absolute	Dominant	Indicator	
ree Stratum (Plot size: 15' )	% Cover	Species?	Status	Dominance Test worksheet:
. Salix nigra		Yes	OBL	Number of Dominant Species
Populus deltoides		Yes	FAC	That Are OBL, FACW, or FAC: 3
				Total Number of Dominant
				Species Across All Strata: 3
				Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0%
				Prevalence Index worksheet:
		=Total Cover		Total % Cover of: Multiply by:
apting/Shrub Stratum (Plot size: 5'	, ——			OBL species 42 x 1 = 42
Salix interior	2	No	FACW	FACW species 2 x 2 = 4
				FAC species 5 x 3 = 15
				FACU species 0 x 4 = 0
				UPL species 0 x 5 = 0
		_		Column Totals: 49 (A) 61
				Prevalence Index = B/A = 1.24
				Hydrophytic Vegetation Indicators:
		=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
erb Stratum (Plot size: 5' )				X 2 - Dominance Test is >50%
Typha angustifolia	30	Yes	OBL	X 3 - Prevalence Index is ≤3.0 <sup>1</sup>
Eupatorium maculatum	_ 2	No	OBL	4 - Morphological Adaptations (Provide sup
			*	data in Remarks or on a separate sheet)
				Problematic Hydrophytic Vegetation <sup>1</sup> (Explai
		<del></del>		<sup>1</sup> Indicators of hydric soil and wetland hydrology no be present, unless disturbed or problematic.
				Definitions of Vegetation Strata:
				Tree – Woody plants 3 in. (7.6 cm) or more in
				diameter at breast height (DBH), regardless of he
).				Sapling/shrub – Woody plants less than 3 in. Di
·				and greater than or equal to 3.28 ft (1 m) tall.
				Herb – All herbaceous (non-woody) plants, regar
	32	=Total Cover		of size, and woody plants less than 3.28 ft tall.
oody Vine Stratum (Plot size: 5	_)			Woody vines – All woody vines greater than 3.2
				height.
				Hydrophytic
				Vegetation
				Present? Yes X No
		=Total Cover		

rofile De	scription: (Describe	to the de	epth needed to doci	ument th	e Indicat	or or cor	nfirm the absence of	indicators.)
Depth	Matrix			ox Feature				•
inches)	Color (moist)	%_	Color (moist)	_ %_	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-6	10YR 3/1	100					Mucky Loam/Clay	
6-12	10YR 3/1	50	10YR 5/3	50	<u> </u>	<u>M</u>	Loamy/Clayey	Distinct redox concentrations
ype: C=	Concentration, D=Dep	letion, RI	M=Reduced Matrix, (	CS=Cove	red or Co	ated Sar	nd Grains. <sup>2</sup> Loca	tion: PL=Pore Lining, M=Matrix.
Histic I Black I Hydrog Stratific Deplet Thick I Sandy Sandy Strippe Dark S	col (A1) Epipedon (A2) Histic (A3) gen Sulfide (A4) ied Layers (A5) ted Below Dark Surface Dark Surface (A12) Mucky Mineral (S1) Gleyed Matrix (S4) Redox (S5) ed Matrix (S6) Surface (S7)  of hydrophytic vegeta	ation and v	Polyvalue Belov MLRA 149B) Thin Dark Surfa High Chroma S. X Loamy Mucky M Loamy Gleyed Matrix X Redox Dark Sur Depleted Dark Sur Depleted Dark S Redox Depressi Marl (F10) (LRE	onace (S9) (Sands (S1) Mineral (F2) Matrix (F3) Matrix (F6) Matrix (F6) Matrix (F6) Matrix (F8) Matrix	(LRR R, M 11) (LRR K -1) (LRR K 2) 5) (F7)	//LRA 14: K, L) K, L)	2 cm Muck Coast Prair 5 cm Muck Polyvalue I Thin Dark S Iron-Manga Piedmont F Mesic Sport Red Paren Very Shalld	Problematic Hydric Soils <sup>3</sup> : (A10) (LRR K, L, MLRA 149B) rie Redox (A16) (LRR K, L, R) ry Peat or Peat (S3) (LRR K, L, R) Below Surface (S8) (LRR K, L) Surface (S9) (LRR K, L) anese Masses (F12) (LRR K, L, F) Floodplain Soils (F19) (MLRA 145, 149) rit Material (F21) ow Dark Surface (TF12) olain in Remarks)
Type:	e Layer (if observed):							
Depth (in							Hydric Soil Pres	ent? Yes X No
Remarks: Data form is 7.0 March 2	is revised from Northca 2013 Errata. (http://soi	entral and ls.usda.g	I Northeast Regional ov/use/hydric)	Supplem	nent Version	on 2.0 to	reflect the NRCS Fiel	eld Indicators of Hydric Soils version



MICHIGAN STATE FAIR & SUBURBAN COLLECTION SHOWPLACE EXPANSION LOCATION MAP



500

NOVI B.M. 16-2

RAILROAD SPIKE IN EAST SIDE POWER POLE ON WEST SIDE OF TAFT ROAD; 400'± NORTH OF GRAND RIVER AVENUE. **ELEVATION 948.80** 

NOVI B.M. 16-7

CHISELED SQUARE ON EAST SIDE LIGHT POLE BASE; 125'± SOUTH OF THE C/L OF GRAND RIVER AND 940'± WEST OF C/L OF TAFT ROAD; ON WEST EDGE OF BIT PARKING LOT FOR GATSBY'S BAR. ELEVATION 963.19

BENCH MARKS

B.M. #3

ARROW ON HYDRANT LOCATED 56'± SOUTH AND 89'± WEST OF THE SOUTHEAST CORNER OF THE SHOWPLACE BUILDING. **ELEVATION 976.88** 

### APPLICANT: TBON, LLC

WATERWAY:

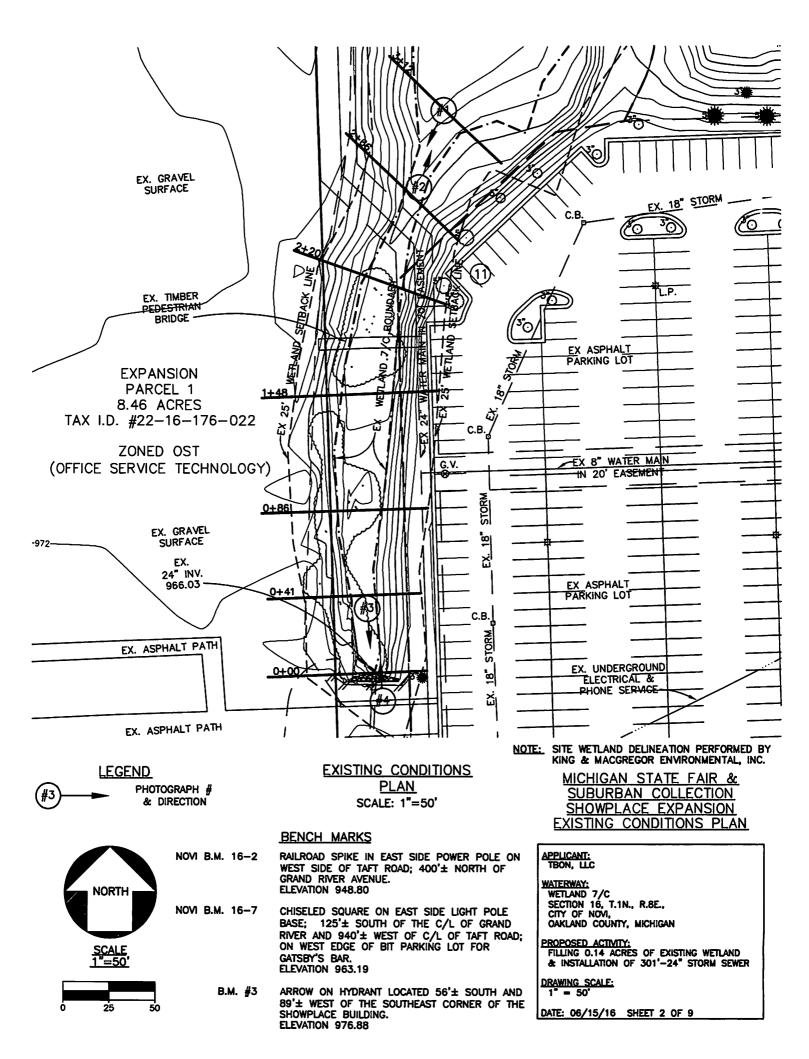
WETLAND 7/C SECTION 16, T.1N., R.8E., CITY OF NOVI,

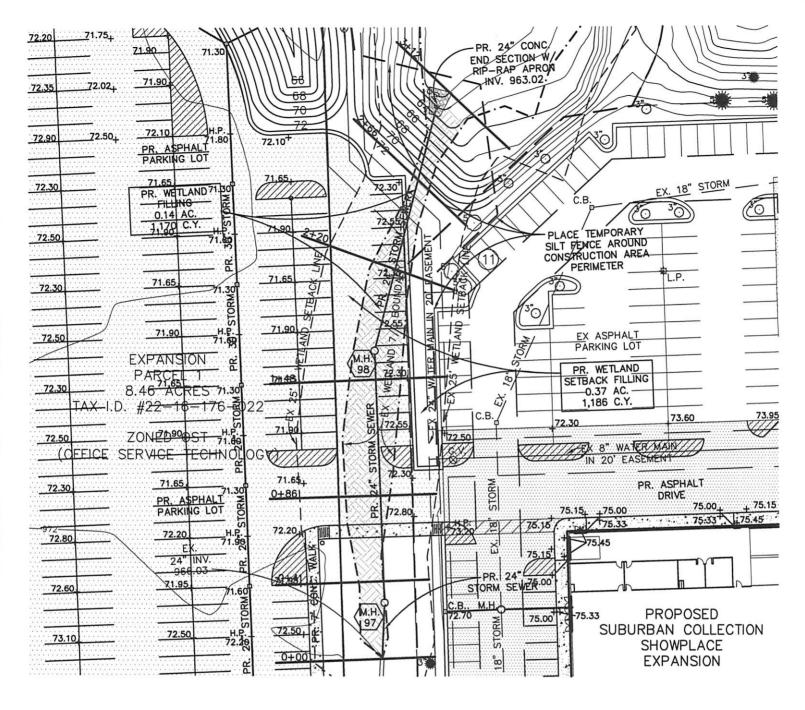
OAKLAND COUNTY, MICHIGAN

PROPOSED ACTIVITY:
FILLING 0.14 ACRES OF EXISTING WETLAND & INSTALLATION OF 301'-24" STORM SEWER

DRAWING SCALE: 1" = 1000'

DATE: 06/15/16 SHEET 1 OF 9





### WETLAND FILLING PLAN SCALE: 1"=50"

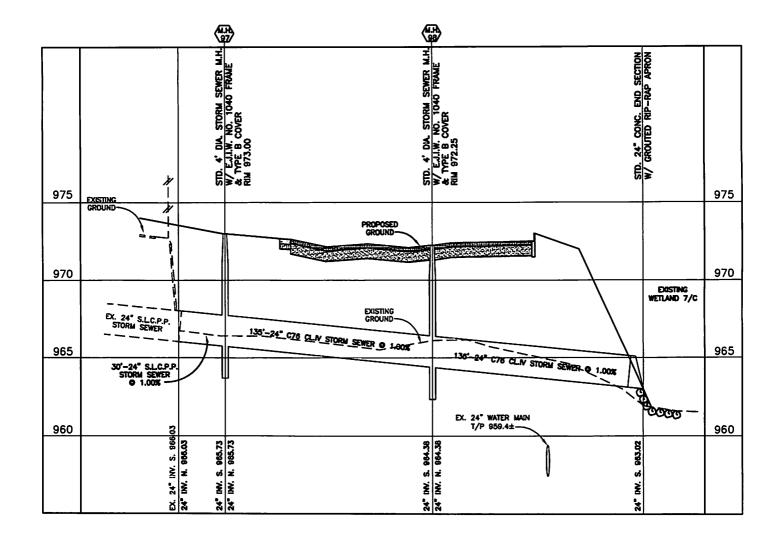
BENCH MARKS

ARROW ON HYDRANT LOCATED 56'± SOUTH AND  $89'\pm$  WEST OF THE SOUTHEAST CORNER OF THE SHOWPLACE BUILDING. **ELEVATION 976.88** 

MICHIGAN STATE FAIR & SUBURBAN COLLECTION SHOWPLACE EXPANSION PROPOSED GRADING PLAN

NOVI B.M. 16-2 RAILROAD SPIKE IN EAST SIDE POWER POLE ON WEST SIDE OF TAFT ROAD; 400'± NORTH OF GRAND RIVER AVENUE. NORTH **ELEVATION 948.80** NOVI B.M. 16-7 CHISELED SQUARE ON EAST SIDE LIGHT POLE BASE; 125'± SOUTH OF THE C/L OF GRAND RIVER AND 940'± WEST OF C/L OF TAFT ROAD; ON WEST EDGE OF BIT PARKING LOT FOR GATSBY'S BAR. ELEVATION 963.19 B.M. #3 DATE: 06/15/16 SHEET 3 OF 9

APPLICANT: TBON, LLC WATERWAY: WETLAND 7/C SECTION 16, T.1N., R.8E., CITY OF NOVI, OAKLAND COUNTY, MICHIGAN PROPOSED ACTIVITY: FILLING 0.14 ACRES OF EXISTING WETLAND & INSTALLATION OF 301'-24" STORM SEWER DRAWING SCALE: = 50



## STORM SEWER PROFILE SCALE: 1"=60' HORIZONTAL 1"=6' VERTICAL

### BENCH MARKS

NOVI B.M. 16-2 RAILROAD SPIKE IN EAST SIDE POWER POLE ON WEST SIDE OF TAFT ROAD; 400'± NORTH OF GRAND RIVER AVENUE. ELEVATION 948.80

NOVI B.M. 16-7 CHISELED SQUARE ON EAST SIDE LIGHT POLE
BASE; 125'± SOUTH OF THE C/L OF GRAND
RIVER AND 940'± WEST OF C/L OF TAFT ROAD;
ON WEST EDGE OF BIT PARKING LOT FOR

GATSBY'S BAR. ELEVATION 963.19

B.M. #3 ARROW ON HYDRANT LOCATED 56'± SOUTH AND 89'± WEST OF THE SOUTHEAST CORNER OF THE SHOWPLACE BUILDING. ELEVATION 976.88

# MICHIGAN STATE FAIR & SUBURBAN COLLECTION SHOWPLACE EXPANSION WETLAND STORM SEWER PROFILE

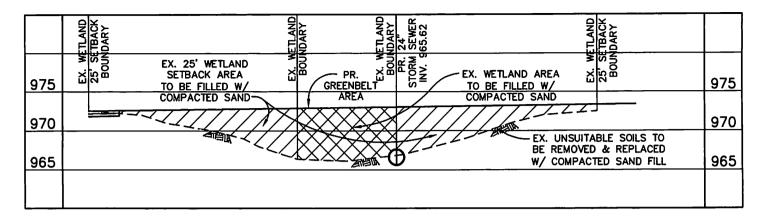
APPLICANT:
TBON, LLC

WATERWAY:
WETLAND 7/C
SECTION 16, T.1N., R.8E.,
CITY OF NOVI,
OAKLAND COUNTY, MICHIGAN

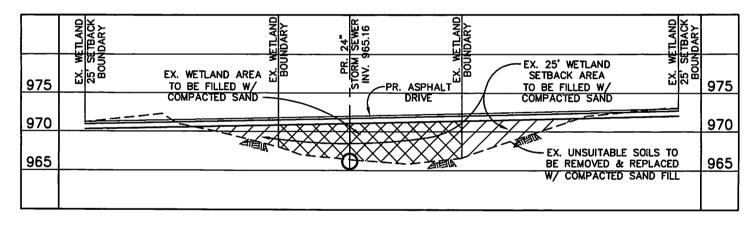
PROPOSED ACTIVITY:
FILLING 0.14 ACRES OF EXISTING WETLAND
& INSTALLATION OF 301'-24" STORM SEWER

DRAWING SCALE:
1" = 60'

DATE: 06/15/16 SHEET 4 OF 9



WETLAND 7/C CROSS SECTION AT STATION 0+41 (LOOKING DOWNSTREAM)



### WETLAND 7/C CROSS SECTION AT STATION 0+86 (LOOKING DOWNSTREAM)

### BENCH MARKS

NOVI B.M. 16-2 RAILROAD SPIKE IN EAST SIDE POWER POLE ON WEST SIDE OF TAFT ROAD; 400'± NORTH OF GRAND RIVER AVENUE.

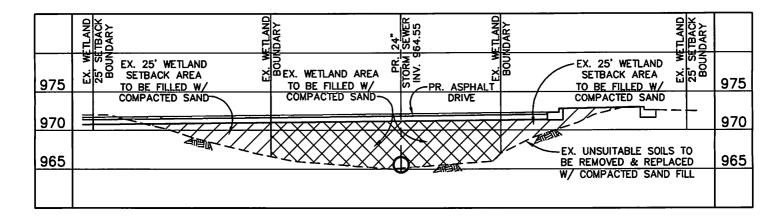
**ELEVATION 948.80** 

CHISELED SQUARE ON EAST SIDE LIGHT POLE NOVI B.M. 16-7 BASE; 125'± SOUTH OF THE C/L OF GRAND RIVER AND 940'± WEST OF C/L OF TAFT ROAD; ON WEST EDGE OF BIT PARKING LOT FOR GATSBY'S BAR. **ELEVATION 963.19** 

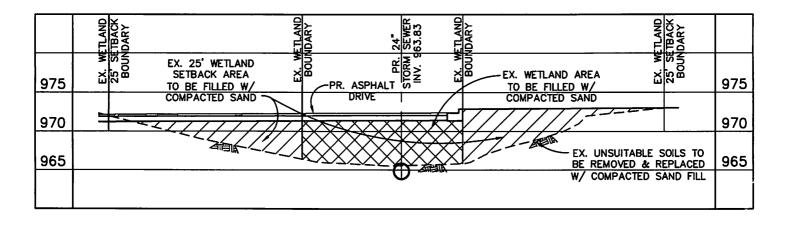
> B.M. #3 ARROW ON HYDRANT LOCATED 56'± SOUTH AND 89'± WEST OF THE SOUTHEAST CORNER OF THE SHOWPLACE BUILDING. **ELEVATION 976.88**

MICHIGAN STATE FAIR & SUBURBAN COLLECTION SHOWPLACE EXPANSION WETLAND CROSS SECTIONS

APPLICANT: TBON, LLC WATERWAY: WETLAND 7/C SECTION 16, T.1N., R.8E., CITY OF NOVI, OAKLAND COUNTY, MICHIGAN PROPOSED ACTIVITY: FILLING 0.14 ACRES OF EXISTING WETLAND & INSTALLATION OF 301'-24" STORM SEWER DRAWING SCALE: 1" = 12' DATE: 06/15/16 SHEET 5 OF 9



### WETLAND 7/C CROSS SECTION AT STATION 1+48 (LOOKING DOWNSTREAM)



### WETLAND 7/C CROSS SECTION AT STATION 2+20 (LOOKING DOWNSTREAM)

### BENCH MARKS

NOVI B.M. 16-2 RAILROAD SPIKE IN EAST SIDE POWER POLE ON WEST SIDE OF TAFT ROAD; 400'± NORTH OF GRAND RIVER AVENUE.

**ELEVATION 948.80** 

NOVI B.M. 16-7 CHISELED SQUARE ON EAST SIDE LIGHT POLE

BASE; 125'± SOUTH OF THE C/L OF GRAND RIVER AND 940'± WEST OF C/L OF TAFT ROAD; ON WEST EDGE OF BIT PARKING LOT FOR

GATSBY'S BAR. **ELEVATION 963.19** 

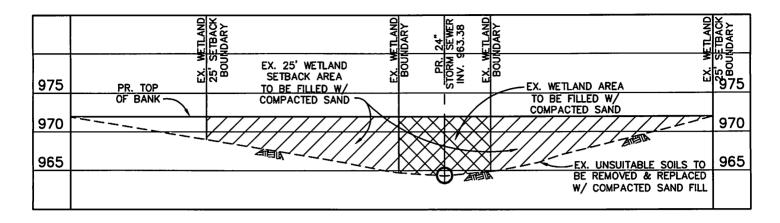
B.M. #3 ARROW ON HYDRANT LOCATED 56'± SOUTH AND 89'± WEST OF THE SOUTHEAST CORNER OF THE

SHOWPLACE BUILDING. **ELEVATION 976.88** 

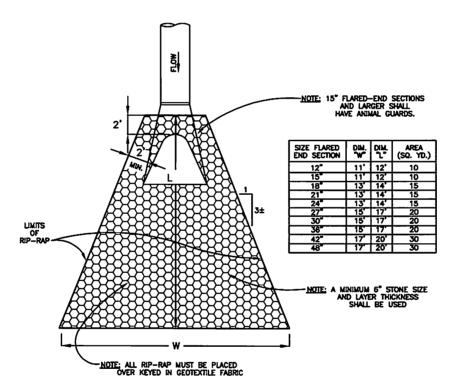
SUBURBAN COLLECTION SHOWPLACE EXPANSION WETLAND CROSS SECTIONS

MICHIGAN STATE FAIR &

APPLICANT: TBON, LLC WATERWAY: WETLAND 7/C SECTION 16, T.1N., R.8E., CITY OF NOVI, OAKLAND COUNTY, MICHIGAN PROPOSED ACTIVITY: FILLING 0.14 ACRES OF EXISTING WETLAND & INSTALLATION OF 301'-24" STORM SEWER DRAWING SCALE: 1" = 12' DATE: 06/15/16 SHEET 6 OF 9



### WETLAND 7/C CROSS SECTION AT STATION 2+66 (LOOKING DOWNSTREAM)



**TYPICAL** RIP-RAP APRON DETAIL

### **BENCH MARKS**

NOVI B.M. 16-2 RAILROAD SPIKE IN EAST SIDE POWER POLE ON WEST SIDE OF TAFT ROAD; 400'± NORTH OF GRAND RIVER AVENUE. **ELEVATION 948.80** 

NOVI B.M. 16-7 CHISELED SQUARE ON EAST SIDE LIGHT POLE BASE; 125'± SOUTH OF THE C/L OF GRAND RIVER AND 940'± WEST OF C/L OF TAFT ROAD; ON WEST EDGE OF BIT PARKING LOT FOR GATSBY'S BAR. **ELEVATION 963.19** 

> ARROW ON HYDRANT LOCATED 56'± SOUTH AND B.M. #3 89'± WEST OF THE SOUTHEAST CORNER OF THE SHOWPLACE BUILDING. **ELEVATION 976.88**

MICHIGAN STATE FAIR & SUBURBAN COLLECTION SHOWPLACE EXPANSION WETLAND CROSS SECTION & RIP-RAP APRON DETAIL

APPLICANT: TBON, LLC

WATERWAY:

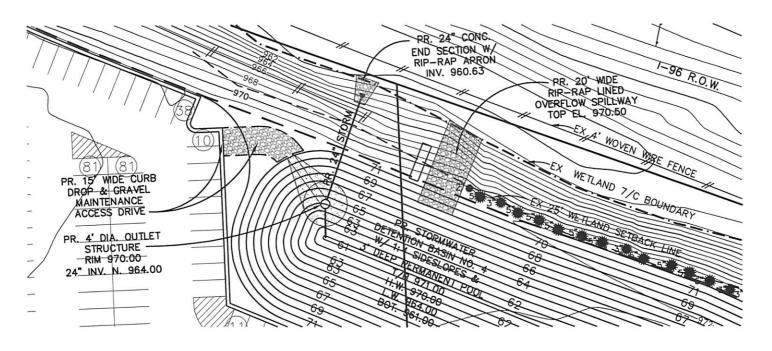
WETLAND 7/C

SECTION 16, T.1N., R.8E., CITY OF NOW, OAKLAND COUNTY, MICHIGAN

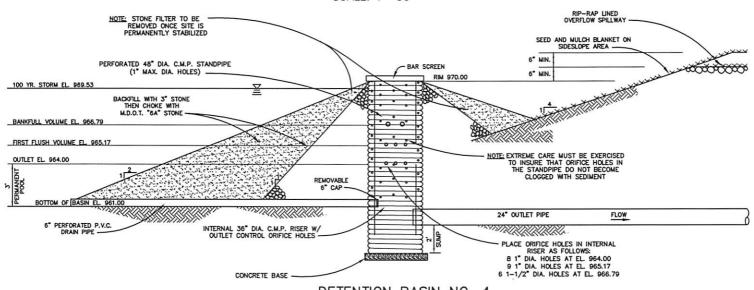
PROPOSED ACTIVITY:
FILLING 0.14 ACRES OF EXISTING WETLAND
& INSTALLATION OF 301"-24" STORM SEWER

DRAWING SCALE:

DATE: 06/15/16 SHEET 7 OF 9

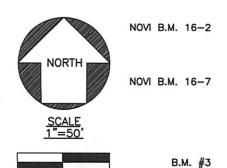


## DETENTION BASIN NO. 4 OUTFALL STORM SEWER PLAN SCALE: 1"=50'



DETENTION BASIN NO. 4
OUTLET STRUCTURE
DETAIL

MICHIGAN STATE FAIR & SUBURBAN COLLECTION SHOWPLACE EXPANSION PROPOSED OUTLET PLAN



### BENCH MARKS

RAILROAD SPIKE IN EAST SIDE POWER POLE ON WEST SIDE OF TAFT ROAD; 400'± NORTH OF GRAND RIVER AVENUE. ELEVATION 948.80

CHISELED SQUARE ON EAST SIDE LIGHT POLE BASE; 125'± SOUTH OF THE C/L OF GRAND RIVER AND 940'± WEST OF C/L OF TAFT ROAD; ON WEST EDGE OF BIT PARKING LOT FOR GATSBY'S BAR. ELEVATION 963.19

ARROW ON HYDRANT LOCATED 56'± SOUTH AND 89'± WEST OF THE SOUTHEAST CORNER OF THE SHOWPLACE BUILDING. ELEVATION 976.88

### APPLICANT:

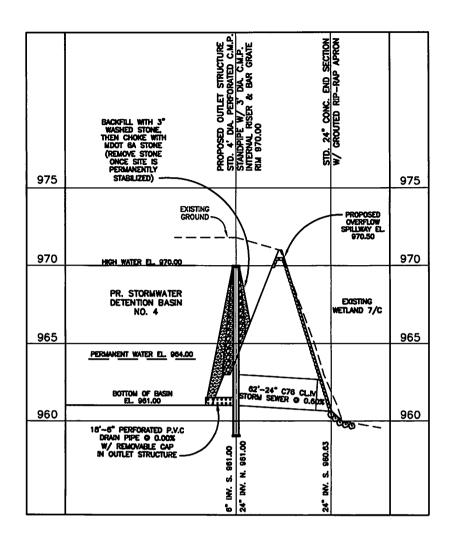
TBON, LLC

WATERWAY:
WETLAND 7/C
SECTION 16, T.1N., R.8E.,
CITY OF NOVI,
OAKLAND COUNTY, MICHIGAN

PROPOSED ACTIVITY:
INSTALLATION OF 24" DETENTION BASIN
OUTFALL STORM SEWER

DRAWING SCALE:

DATE: 06/15/16 SHEET 8 OF 9



## DETENTION BASIN OUTFALL STORM SEWER PROFILE SCALE: 1"=60' HORIZONTAL

1"=6' VERTICAL

### **BENCH MARKS**

NOVI B.M. 16-2

RAILROAD SPIKE IN EAST SIDE POWER POLE ON WEST SIDE OF TAFT ROAD; 400'± NORTH OF GRAND RIVER AVENUE.
ELEVATION 948.80

NOVI B.M. 16-7 CHISELED SQUARE ON EAST SIDE LIGHT POLE
BASE; 125'± SOUTH OF THE C/L OF GRAND
RIVER AND 940'± WEST OF C/L OF TAFT ROAD;
ON WEST EDGE OF BIT PARKING LOT FOR
GATSBY'S BAR.
ELEVATION 963.19

B.M. #3 ARROW ON HYDRANT LOCATED 56'± SOUTH AND 89'± WEST OF THE SOUTHEAST CORNER OF THE SHOWPLACE BUILDING. ELEVATION 976.88

# MICHIGAN STATE FAIR & SUBURBAN COLLECTION SHOWPLACE EXPANSION OUTLET STORM SEWER PROFILE

APPLICANT:
TBON, LLC

WATERWAY:
WETLAND 7/C
SECTION 16, T.1N., R.8E.,
CITY OF NOV,
OAKLAND COUNTY, MICHIGAN

PROPOSED ACTIVITY:
INSTALLATION OF 24" DETENTION BASIN
OUTFALL STORM SEWER

DRAWING SCALE:
1" = 60'

DATE: 06/15/16 SHEET 9 OF 9



1.) EXISTING WETLAND 7/C @ PROPOSED END SECTION LOOKING UPSTREAM



2.) EXISTING WETLAND 7/C @ PROPOSED END SECTION LOOKING DOWNSTREAM



3.) EXISTING WETLAND 7/C @ EXISTING 24" OUTLET (LOOKING UPSTREAM)



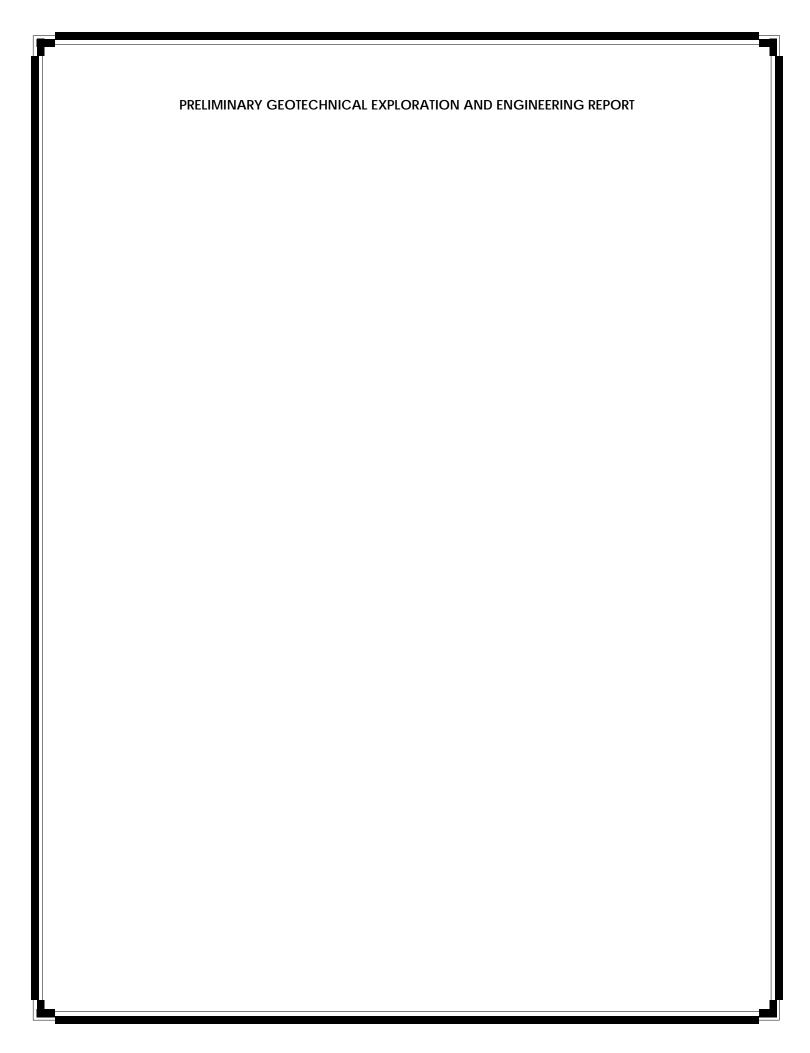
4.) EXISTING WETLAND 7/C @ EXISTING 24" OUTLET (LOOKING DOWNSTREAM)



EXISTING WETLAND 7/C @ PROPOSED 24" DETENTION BASIN OUTFALL END SECTION LOOKING UPSTREAM (SOUTH)



EXISTING WETLAND 7/C @ PROPOSED 24" DETENTION BASIN OUTFALL END SECTION LOOKING DOWNSTREAM (NORTH)





PROPOSED 38-ACRE LIGHT INDUSTRIAL PARK DEVELOPMENT Novi, Michigan

**Preliminary Geotechnical Exploration and Engineering Report** 

**Boco Enterprises Novi, Michigan** 

ETS Project No. D4602

June 16, 1998



June 16, 1998

Geotechnical, Environmental & Materials Consultants

Mr. Blair Bowman Boco Enterprises 43700 Expo Center Drive, Suite 101 Novi, Michigan 48375

Re:

Preliminary Geotechnical Exploration and Engineering Report

Proposed 38-Acre Light Industrial Park Development

Novi, Michigan

ETS Project No. D4602

Dear Mr. Bowman:

We have completed the preliminary geotechnical exploration and engineering report for the proposed 38-Acre Parcel to be developed on the north side of Grand River Avenue, west of Taft Road, in Novi, Michigan. This report presents the results of our observations and analysis and our recommendations for subgrade preparation, foundation design, and construction considerations.

We appreciate the opportunity to assist you and the design team on this project. If you have any questions regarding this report, please do not hesitate to contact us.

Thank you very much for your continued use of our services.

Respectfully,

ENGINEERING & TESTING SERVICES, INC.

Jefferey T. Anagnostou, P.E., C.P.G.

Suan H. Beth for STA

Technical Services Manager

3 pc: encl.

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### **APPENDIX**

#### **EXECUTIVE SUMMARY**

Approximately 2 to 12 inches of topsoil was encountered at the boring locations. A silty fine sand layer was encountered to a depth of 2½ feet within Boring B-1. The underlying soils generally consisted of silty and sandy clay with occasional sand seams and layers to explored depth of 15 and 20 feet below the existing ground surface. Within Boring B-7, the silty clay was underlain by silty fine to coarse sand to the explored depth of 15 feet.

Groundwater seepage was encountered during drilling at approximate depths of 7 to 14½ feet below the existing ground surface in Borings B-1, B-6, and B-7. After the completion of drilling operations, the groundwater level was measured at approximate depths of 14 and 2 feet below the existing ground surface in Borings B-6 and B-7, respectively. Boring B-1 was reported to be dry after the completion of drilling operations. The remaining boring were reported to be dry both during and after the completion of drilling operations.

We understand it is planned to develop the parcel as a light industrial subdivision with light industrial office/warehouse structures without basements. In general, we believe the structures can be supported on spread footing type foundations extending 3½ to 5 feet below the existing ground surface and bearing on the native stiff to hard silty and sandy clays. We estimate individual spread footing foundations can be sized for net allowable soil pressures of approximately 2,500 to 3,500 pounds per square foot (psf) bearing on native stiff to hard silty and sandy clays. We estimate strip or wall footing foundations can be sized for allowable soil pressures of approximately 2,000 to 3,000 psf bearing on native stiff to hard silty and sandy clay.

Caving and sloughing of the near surface granular soils into the foundation excavations is anticipated in areas of surficial granular soils. In addition, groundwater seepage from perched water accumulations may also be encountered during foundation construction. We believe the anticipated groundwater seepage from perched accumulations can be controlled by normal sump pit and pumping procedures.

Final site grades were not available at the time our exploration was completed. Our observations and recommendations are based on final grades being close to existing grades. If significant cuts or fills are planned, the allowable soil bearing pressures may need to be revised. Also, groundwater seepage into the spread footing foundation excavations may take place if final grades are significantly lower than existing grades.

### **EXECUTIVE SUMMARY, Page 2**

Do not consider this summary separate from the entire text of this report, with all the conclusions and qualifications mentioned herein. Details of our analysis and recommendations are discussed in the following sections and in the Appendix of this report.

REPORT PREPARED BY:

REPORT REVIEWED BY:

Susan H. Bertram, P.E. Project Engineer

Jefferey T. Anagnostou, P.E., C.P.G. Technical Services Manager

#### 1. INTRODUCTION

We have completed the geotechnical exploration and engineering report for the proposed 38-Acre Light Industrial Park Development located in Novi, Michigan. Boco Enterprises retained Engineering & Testing Services, Inc. (ETS) to perform this exploration. This report presents the results of the exploration, including the boring logs and our recommendations for the foundation design and construction.

### 1.1 Project Description

The site is located along the north side of Grand River Avenue, south of the I-96 Expressway, and west of Taft Road in Novi, Michigan. We understand present plans include the development of a light industrial subdivision with construction of light industrial office/warehouse structures at the site. At the time this exploration was completed, the plans for the proposed parcel development were not yet finalized. We estimate structure loads may be light to moderate.

### 1.2 Scope of Geotechnical Services

Our scope of services for this project is as follows:

- A) Performing eight (8) soil borings to a depth of 15 feet each, located at the approximate locations shown on the Boring Location Plan included in the appendix.
- B) Performing appropriate testing including visual engineering classification, natural moisture content determinations, and unconfined compressive strength estimates on representative samples; and
- C) Geotechnical engineering analysis and preparation of this written engineering report. The written report includes recommendations regarding anticipated foundation types suitable for the soil conditions encountered, preliminary estimated allowable bearing pressure of the foundations, general recommendations concerning pavement subgrade preparation, and construction considerations related to foundation construction.

Boring B-1 was extended to a depth of 20 feet due to environmental considerations. The results of the environmental drilling and sampling will be presented in our Phase II Environmental Site Assessment report to be transmitted at a later date.

Environmental considerations were not included in the scope of services for this preliminary geotechnical report.

The field operations, laboratory testing, and engineering report preparation were performed under the direction and supervision of a registered professional engineer. These services were performed according to generally accepted standards and procedures in the practice of geotechnical engineering. If changes occur in the design, location, or concept of the project, the conclusions and recommendations contained in this report are not valid unless ETS reviews the changes. ETS will then confirm our recommendations or make changes in writing.

#### 2. FIELD AND LABORATORY PROGRAM

### 2.1 Field Program

The number, depth, and location of the borings were determined by ETS in consultation with Boco Enterprises. The borings were located in the field based on a preliminary site plan provided by Boco Enterprises. The ground surface elevations at the boring locations were not available at the time our exploration was completed. Based on the contour elevations shown on the 7.5 Minute USGS Novi, Michigan and Salem, Michigan quadrangle topographic maps, the site area is located within approximate ground surface contour line Elevations 940 and 960 feet.

An all-terrain vehicle (ATV) mounted rotary drilling rig was used to perform the soil borings. Continuous flight hollow-stem augers were used to advance the bore holes and split-spoon samplers were used to obtain the soil samples by the Standard Penetration Test (SPT) method in general conformance with ASTM Standard D-1586. The number of blows required to drive the sampler 12 inches, after an initial seating of 6 inches, with a 140-pound hammer falling 30 inches is termed the Standard Penetration Resistance, N-value. A graphical representation of the N-values is given on the boring logs.

During the field operations, the drill crew maintained the log of the subsurface conditions, including changes in stratigraphy and observed groundwater levels. After completion of the drilling operations, the boreholes were backfilled with auger cuttings.

#### 2.2 <u>Laboratory Testing</u>

The soil samples were placed in sealed containers in the field and brought to the laboratory for testing and classification. A geotechnical engineer classified the samples in general conformance with the Unified Soil Classification System.

Laboratory testing included natural moisture content determinations and unconfined compressive strength estimates of the split-spoon samples with a calibrated hand penetrometer. With a hand penetrometer, the unconfined compressive strength of a soil sample is estimated by measuring the resistance of the soil sample to penetration of a small, calibrated spring-loaded cylinder. The penetrometer can measure a maximum unconfined compressive strength of 4½ tons per square foot (tsf).

The results of the laboratory tests are indicated on the boring logs at the depths the samples were obtained. In cases where the hand penetrometer indicates the unconfined compressive strength is in excess of 4½ tsf, the results are plotted as open circles at 4½ tsf with a "+" sign to indicate the actual strength is greater than 4½ tsf.

We will hold the soil samples for 60 days from the date of this report. If you would like the samples, please notify us within this time frame.

#### 3. SITE AND SUBSURFACE CONDITIONS

#### 3.1 Site Conditions

The site is located along the north side of Grand River Avenue, south of the I-96 Expressway and west of Taft Road, in Novi, Michigan. At the time of our field exploration the site was generally heavily wooded with apparent wetland vegetation in the western portion of subject parcel. A small stream was observed to flow from east to west along the central portion of the southern property parcel. The site consisted of gently rolling hills and low-lying wetlands.

#### 3.2 Soil Conditions

The soil conditions encountered at the boring locations can be summarized as follows. Approximately 2 to 12 inches of topsoil was encountered at the boring locations. A silty fine sand layer was encountered to a depth of  $2\frac{1}{2}$  feet within Boring B-1. The underlying soils generally consisted of silty and sandy clay with occasional sand seams and layers to the explored depth of 15 and 20 feet below the existing ground surface. Within Boring B-7, the silty clay was underlain by silty fine to coarse sand to the explored depth of 15 feet.

The silty and sandy clay encountered to a depth of 10 feet below the existing grade, was generally very stiff to hard with unconfined compressive strengths ranging from 2 to greater than 4½ tsf and natural moisture contents ranging from 10 to 22 percent. In Boring B-5, the sandy clay encountered to a depth of 5 feet was medium to stiff with unconfined compressive strengths ranging from ½ to 1½ tsf and natural moisture contents ranging from 14 to 18 percent. The near surface silty sand encountered in Boring B-1 was medium dense with an N-value of 15 blows per foot. Below a depth of 10 feet, the silty and sandy clays were generally stiff to very stiff with unconfined compressive strengths ranging from 1 to 3½ tsf and natural moisture contents ranging from 10 to 14

percent. The silty sand encountered below a depth of 7 feet in Boring B-7 was very loose to loose with N-values ranging from 4 to 9 blows per foot.

The stratification depths shown on the soil boring logs represent the soil conditions at the boring locations. Variations may occur between the borings. Additionally, the stratigraphic lines represent the approximate boundary between soil types; the transition may be more gradual than what is shown. We have prepared the boring logs on the basis of laboratory classification and testing as well as field logs of the explored soils.

The soil boring logs and a boring location plan are presented in the Appendix. The soil profiles described above are generalized descriptions of the conditions encountered at the boring location. Please consult the boring logs for more specific information.

#### 3.3 Groundwater Level Observations

The driller looked for indications of groundwater during and after the performance of the soil borings. Groundwater seepage was encountered during drilling at approximate depths of 7 to 14½ feet below the existing ground surface in Borings B-1, B-6, and B-7. After the completion of drilling operations, the groundwater level was measured at approximate depths of 14 and 2 feet below the existing ground surface in Borings B-6 and B-7, respectively. Boring B-1 was reported to be dry after the completion of drilling operations. The remaining boring were reported to be dry both during and after the completion of drilling operations.

Predominantly cohesive soils, such as encountered at the site, require a long time for water to become stable in the bore hole. To determine the prevailing groundwater level, groundwater monitoring wells (piezometers) must be installed in the bore holes and monitored for an extended time. The depth at which the soil color changes from brown to gray is frequently indicative of the

prevailing groundwater level. Based on the available soil and groundwater level information, we believe the prevailing groundwater level may be located at depths ranging from approximately 3½ to 14 feet below the existing ground surface.

Expect the prevailing groundwater level to vary due to changes in precipitation, evaporation, surface run-off, and other factors. The groundwater levels discussed herein, and shown on the boring logs, represent the conditions at the time of the measurements.

#### 4. ANALYSIS AND RECOMMENDATIONS

We have made our analysis based on the information developed during this exploration. The resulting recommendations are given in the following sections. If our assumptions or understandings are not correct or if conditions during construction are significantly different from those found in the site exploration, contact ETS immediately. ETS may need to re-evaluate the recommendations.

### 4.1 <u>Subgrade Preparation</u>

Strip the building areas of trees, topsoil, and other organic matter in their entirety. Thoroughly proofroll the resulting subgrade with a heavily loaded single-axle dump truck. Loose, soft, or unstable areas revealed during proofrolling should be stabilized by additional compaction, or removed and replaced with engineered fill. If significant instability of the subgrade occurs, it may be necessary to undercut the loose or soft fill material and stabilize the subgrade surface with a woven geotextile, such as Mirafi 500X or equivalent, and a crushed aggregate layer.

The natural moisture content of the surface sandy or silty clays may be higher than the optimum for compaction. It may be necessary to disc and dry these soils before attempting to compact and proofroll the subgrade surface in preparation for placement of engineered fill. After suitable drying, the subgrade surface may be stable or become stable from proofrolling compaction.

### 4.2 Engineered Fill Placement and Compaction

Any fill placed beneath on-grade structures should be an approved, environmentally clean material. The fill should also be free of organic matter, frozen soil, clods, or other harmful material. The fill material should not be placed on frozen subgrade. Spread the fill in level lifts, not exceeding 9

inches in loose thickness, and compact the soil to a minimum of 95 percent of the maximum dry density as determined by ASTM Standard D1557 (Modified Proctor). All engineered fill should be placed at or near the optimum moisture content.

#### 4.3 Foundations

As discussed previously, we understand it is planned to develop the parcel as a light industrial subdivision with light industrial office/warehouse structures without basements. In general, we believe the structures can be supported on spread footing type foundations extending 3½ to 5 feet below the existing ground surface and bearing on the native stiff to hard silty and sandy clays. We estimate individual spread footing foundations can be sized for net allowable soil pressures of approximately 2,500 to 3,500 pounds per square foot (psf) bearing on native stiff to hard silty and sandy clays. We estimate strip or wall footing foundations can be sized for allowable soil pressures of approximately 2,000 to 3,000 psf bearing on native stiff to hard silty and sandy clays.

Embed the spread footing foundations a minimum of 42 inches below final grade for protection against problems related to frost penetration during normal winters.

Final site grades were not available at the time our exploration was completed. Our observations and recommendations are based on final grades being close to existing grades. If significant cuts are planned, the allowable soil bearing pressures may need to be revised. Also, groundwater seepage into the spread footing foundation excavations may take place. Once the plans for the proposed development have been finalized, we recommend a more comprehensive geotechnical exploration be performed to properly ascertain the soil conditions and define the prevailing groundwater level at the site, particularly in the wetland areas.

We recommend ETS be given the opportunity to review the plans once the structures and associated facilities plans are finalized and the structure loads known, to verify the final foundation design is consistent with the design considerations presented in this preliminary report.

We recommend the site preparation activities, engineered fill placement, and foundation construction of the proposed project be observed by an ETS representative. Our representative will perform the appropriate type and number of field tests to verify compliance with construction specifications and that the foundation bearing material is suitable.

#### 4.4 Slab-On-Grade Support

We recommend the procedures described previously in the section under "Subgrade Preparation", be used to prepare the subgrade soil for floor slab support.

#### 4.5 General Pavement Design Considerations

The pavement subgrade soils should be prepared as indicated in the Subgrade Preparation section of this report. After stripping or cutting to the design subgrade elevation, proofrolling and undercutting as necessary to achieve a stable subgrade, engineered fill can be placed to the design subgrade elevation in the areas where grade will be raised. Following these recommendations, we believe the treated subgrade will be adequate to provide proper pavement support. Long term performance will typically be a function of the quality of the subgrade at the time the paving is performed, and the quality, thickness, and strength of the pavement section. Therefore, it is important to provide proper subgrade preparation to obtain as long a pavement service life as possible.

The pavement surface should be adequately sloped to promote good surface drainage and to reduce water infiltration into the base course. We recommend finger drains, as a minimum, be installed at all catch basin locations to provide drainage for surface water which may become trapped in the pavement aggregate base section.

Based on the subgrade conditions encountered at the site and our experience, we recommend using a CBR value of 3 and a modulus of subgrade reaction of 125 pounds per cubic inch (pci) in the design of flexible and rigid pavements, respectively.

#### 4.6 <u>Construction Considerations</u>

Caving and sloughing of the surface granular soils into the foundation excavations is anticipated in areas of near surface granular soils. In addition, groundwater seepage from perched water accumulations may also be encountered during foundation construction. We believe the anticipated groundwater seepage from perched accumulations can be controlled by normal sump pit and pumping procedures.

All excavations should be safely sheeted, shored, sloped, or braced in accordance with MI-OSHA requirements. If material is stored or equipment is operated near an excavation, stronger shoring must be used to resist the extra pressure due to the superimposed loads. Care should always be exercised when excavating near existing buildings, roadways, or utilities to avoid undermining. In no case should excavations extend below the level of adjacent existing foundations unless underpinning of the foundations is planned. Abandoned utilities in the area of the proposed foundations should be removed or completely filled with grout.

#### 4.7 General Comments

ETS prepared this preliminary report according to generally accepted geotechnical engineering standards and procedures. The purpose of this report is to aid in the evaluation of this property and to help the design team of this project. If changes occur in the design, location, or concept of the project, the conclusions and recommendations contained in this report are not valid. The changes must be reviewed by ETS with the recommendations of this report modified or affirmed in writing by ETS.

We base the analyses and recommendations submitted in this report upon the data from the soil borings performed at the approximate location shown on the location diagram. This report does not reflect variations that may occur between the actual boring location and the actual structure location. The nature and extent of any such variations may not become clear until the time of construction. If significant variations then become evident, it may be necessary for us to reevaluate our report recommendations.

When obtaining and testing samples and preparing this report, we followed procedures that represent reasonable and accepted practice in the geotechnical engineering profession. The field log is prepared during the drilling and sampling operations to describe the field observations, sampling depths, and other information. We frequently subject the samples from the field to additional testing and reclassification in the laboratory. Differences may exist between the field log and the final log. The engineer preparing the report reviews the field log, laboratory classifications, and test data, and then prepares the final boring log. We base our recommendations on the contents of the final log.

We recommend ETS be given the opportunity to review the final design plans and specifications as they relate to the recommendations presented in this report. The review is necessary to verify the

report conclusions and recommendations have been interpreted according to our intent and are properly incorporated into the design. Further, the review will verify subsequent changes to the project have not affected our recommendations. Without this review, we can not be held responsible for misinterpretation of our data, analysis and/or our recommendations, nor how these are incorporated in the final design.

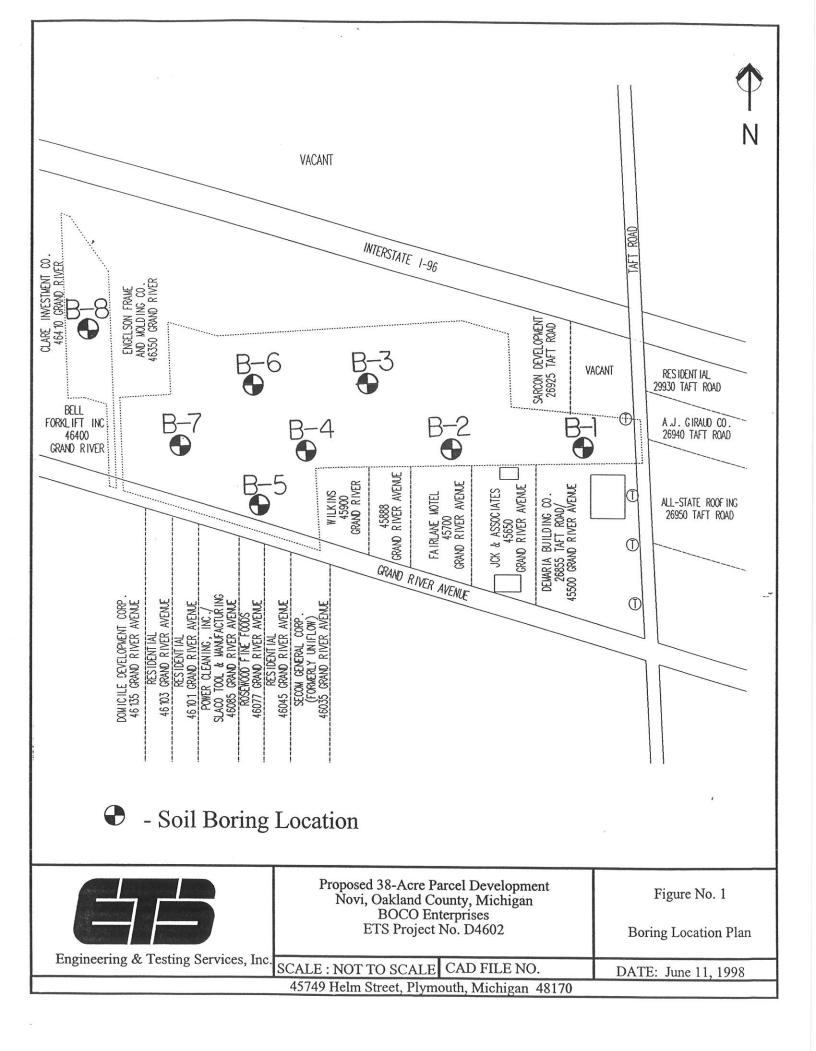
We also recommend ETS observe all geotechnical related work, including foundation construction, subgrade preparation, and engineered fill placement. ETS will perform the appropriate testing to confirm the geotechnical conditions given in the report are found during construction.

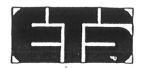
The contract specifications should include the following:

"The contractor will, upon becoming aware of subsurface or latent physical conditions differing from those disclosed by the original soil investigation work, promptly notify the owner verbally to permit verification of the conditions, and in writing, as to the nature of the differing conditions. No claim by the contractor for any conditions differing from those anticipated in the plans and specifications and disclosed by the soil studies will be allowed unless the contractor has so notified the owner, verbally and in writing, as required above, of such differing subsurface conditions."

### **APPENDIX**

- 1. FIGURE 1 BORING LOCATION PLAN
- 2. GENERAL NOTES
- 3. BORING LOGS (B-1 THROUGH B-8)
- 4. UNIFIED SOIL CLASSIFICATION SYSTEM





### **Drilling & Sampling Symbols**

SS - Split Spoon - 1 3/8" I.D., 2" O.D., except where

ST — Shelby Tube — 3" O.D., except where noted

PA - Power Auger

PS - Piston Sample - 3" diameter

WB - Wash Boring

WS - Wash Sample

HA — Hand Auger Boring

- Bag Sample

RC - Rock Core with diamond bit, NX size, except

where noted

RB — Roller Bit

N/A — Not applicable or available

Standard Penetration Test "N" Value — Blows per foot after an initial 6 inch seating of a 140 pound hammer falling 30 inches on a 2 inch O.D. split spoon, except where noted.

### Water Level Measurement Notation & Symbols

#### **Particle Sizes**

First	<ul> <li>When noted during drilling or</li> </ul>	Boulders	— Greater than 6" (152.4 mm)
	sampling process	Cobbles	— 3" to 6" (76.2 mm to 152.4 mm)
Completion	— After all drilling tools are	Gravel	— Coarse — ¼" to 3" (19.05 mm to 76.2 mm)
	removed from borehole	Gravel	— Fine — (No. 4) 3/16" to 3/4" (4.75 mm to 19.05 mm)
HR	<ul> <li>Number of hours after completion</li> </ul>	Sand	— Coarse — No. 10 to No. 4 (2.00 mm to 4.75 mm)
N/R	— Not recorded	Sand	- Medium - No. 40 to No. 10 (0.425 mm to
Dry	<ul> <li>No measurable water level found in</li> </ul>		2.00 mm)
	borehole	Sand	- Fine - No. 200 to No. 40 (0.074 mm to
			0.425 mm)
		Silt	- Minus No. 200 (0.005 mm to 0.074 mm)
	1	Clay	— Less than 0.005 mm

Water levels indicated on the boring logs are the levels measured in the boring at the time indicated. The accurate determination of groundwater levels may not be possible with short term observations, especially in impervious soils. The level shown may fluctuate throughout the year with variations in precipitation, evaporation, runoff, and other hydrogeologic factors.

## CLASSIFICATION

#### **Cohesionless Soil**

Relative Density	"N" Value (Blows/ft)					
Very Loose	-0 to 4					
Loose	5 to 9					
Medium Dense	10 to 29					
Dense	30 to 49					
Very Dense	50 to 79					
Extremely Dense	Over 80					

#### Soil Constituents

"Trace"	Less than 10%
"Trace to Some"	10% to 19%
"Some"	20% to 34%
"And"	35% to 50%

#### **Cohesive Soil**

	Unconfined Compressive Stree	ngth
Consistency	(tons/sq. ft.)	
Very Soft	Less than 0.25	
Soft	0.25 to 0.49	
Medium	0.50 to 0.99	4
Stiff	1.00 to 1.99	
Very Stiff	2.00 to 3.99	
Hard	Greater than 4.00	

### Soil Description Terminology

If clay content is sufficient so that clay dominates soil properties then clay becomes the primary noun with other major soil constituent as modifier, i.e. silty clay. Other minor soil constituents may be added according to estimates of soil constituents present, i.e. silty clay, trace to some sand, trace gravel.

Client:	Client				ETS Project #: D4602 Boring			7					
BOCO Enterprises Sheet: 1				Sheet: 1 of	1 Number: D-1								
Project		oos	ed 38	3-Acre Developmen	t	Location: <b>Novi,</b>	Oakla	and Coui	nty, MI	E	ngineering & ervices, Inc.	2 Testing	
PCF Indicates Sample D						(8	⊗ "N" Blo	⊗ N Blows Fel Foot			Unconfined Compressive Strength (TSF)		
Sample No./Type	Sample Distance	Recovery	Depth (feet)	Descriptio	n Of M	laterial	Depth (meters)	● Natural	Moisture Content	× Undra (KSF)	rated Hand trometer (T ained Shear		6
S	0,			Surface Elevation:				Scale: 4	0/inch	Scale:	4/inch		
188				Oriller reported 2" of SILTY FINE SAND, dense, moist, brown	trace gr		1 =	8					-
255	777		5 =	SILTY CLAY, trace occasional silt parti			- 2 -					Q*4.5	
3SS 4SS	7777											<b>(</b> *4.5 ()*4.5	
5SS			<b>10 1</b>	SILTY CLAY, trace gray (CL)	sand an	nd gravel, hard,	4	8					
6SS			15 =	SILTY FINE SAND, gray (SM)  SILTY CLAY, trace occasional sand sea	sand an	nd gravel,	5						
			20	END OF BORING			6 =				O		
									-			7	
Note:	The	str	atifica	tion lines indicated h	erein ar	e approximate; In	-situ t	he transi	tion between s	oil type	s may be	gradu	al
				Started: <b>5-28-9</b> 8	3		Drawn By: CJ	L	Approved	SB			
	-	'5"		while drilling	Boring	Completed: 5-28	3-98		Office: Detro	it	File:	D460	2
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		completion	Note: I	Boring ba	ckfilled	with s	oil unle	ss othe	rwise not	ted.		

## Unified Soil Classification



Major Divisions Grou			1	I IVUICAL NAMOS		Lat	poratory Classification Criteria		
Coarse Grained Soils (More than half of material is larger than No. 200 sieve size)		Clean Gravels Ittle or no fines)	GW		Well graded gravels, gravel- sand mixtures, little or no fines		$Cu = \frac{D \infty}{D_{10}} \text{ greater than 4;} \qquad Cc = \frac{(D_{\infty})^2}{D_{10} \times D_{\infty}} \text{ Between 1 and 3}$		
	els parse fraction	Clean Gravels (Little or no fines)	Gi	Р	Poorly graded gravels, gravel- sand mixtures, little or no fines		Not meeting all gradation requirements for GW.		
	Gravels (More than half of coarse fraction is larger than No. 4 shore size)		GM	d u	Silty gravels, gravel-sand- silt mixtures	eve	Atterberg limits below "A"  line or PI less than 4  Above "A" line with PI  between 4 and 7 are		
	(More	Gravels with fines (Appreciable amount of fines)	G	С	Clayey gravels, gravel-sand- clay mixtures	in-size curve. than No. 200 si N, SP M, SC dual symbols	Atterberg limits above "A" use of dual symbols.		
		ands o fines)	SW		Well graded sands, gravelly sands, little or no fines	Determine percentage of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse grained soils are classified as follows: Less than 5%	Cu = $\frac{D \infty}{D_{10}}$ greater than 6; Cc = $\frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3		
	ds oarse fraction	Clean Sands (Little or no fines)	SF	0	Poorly graded sands, gravelly sands, little or no fines	tage of sand and centage of fines led soils are class	Not meeting all gradation requirements for SW.		
	Sands (More than half of coarse fraction is smaller than No. 4 sions else)	th fines tiable of fines)	SM	d	Silty sands, sand-silt mixtures	Determine percentage of Depending on percenta Size), coarse grained so Less than 5%	Atterberg limits below "A" Limits plotting in hatched zone with P1 between 4		
	(Mo	Sands with fines (Appreciable amount of fines)	S	С	Clayey sands, sand-day mixtures	Size De Size Size Size Size Size Size Size Siz	Atterberg limits above "A" cases requiring use of dual symbols.		
Fine Grained Soils (More than half of material is smaller than No. 200 sieve size)		M	L	Inorganic sitts and very fine sands, rock flour, sitty or clayey fine sands or clayey sitts with slight plasticity	60 For Cla	PLASTICITY CHART  assification of fine-grained and fine fraction of			
	Silts and Clays (iiquid limit less than 50)		timil limit ss than 50) Cr		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, sitty clays, lean clays	50 — coarse Limits are bor requiri	-grained soils. Atterberg plotting in hatched area rderline classifications ng use of dual symbols.		
			0	L	Organic sitts and organic sitty clays of low plasticity	40 Equation PI = 0.	on of A-line: 73(LL-20)		
	\$ <u>\</u>	M	H	Inorganic sitts, micaceous or diatomaceous fine sandy or sitty soils, elastic sitts	Plasticity Index	OH and MH			
	Silts and Clays	Silts and Clays (liquid limit greater than 50)		ilts and Clay: (liquid limit reater than 5		Н	Inorganic days of high plasticity, fat days	20	CL
	S D		0	Н	Organic clays of medium to high plasticity, organic silts	10 - 7 4	ML and OL		
(More th	Highly	Organic Soils	F	Pt	Peat and other highly organic soils	0 10	20 30 40 50 60 70 80 90 Liquid Limit		







### Report On:

## Geotechnical Investigation Proposed Novi Expo Center Novi, Michigan

Prepared For:

Clayco Construction Company, In Livonia, Michigan

NTH Project No. 15-030094-00 February 19, 2003

Commitment • Innovation • Excellence



38955 Hills Tech Drive Farmington Hills, MI 48331-3432 248.553.6300 248.324.5179 Fax

Mr. Donald J. Webb, P.E. Clayco Construction Company, Inc. 19500 Victor Parkway, Suite 375 Livonia, Michigan 48152 February 19, 2003 Project No.: 15-030094-00

Hosam S. Yaldo, P.E.

Project Manager

Re:

Report on Geotechnical Investigation

Proposed Novi Expo Center

Novi, Michigan

Dear Mr. Webb:

We are pleased to submit this report on geotechnical investigation performed for the proposed Novi Expo Center in Novi, Michigan. We performed this investigation in accordance with the agreed-upon scope of work outlined in our Proposal No. P-20030075-F, dated January 14, 2003.

We appreciate the opportunity to have been of service to you, and we look forward to participating in the construction phase of this project. If you have any questions, or require additional information, please contact us.

Sincerely,

NTH Consultants, Ltd.

Peter A. Margules, P.E.

Project Engineer

PAM/HSY/mam

Attachments

nts



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#### 1.0 INTRODUCTION

This report presents the results of a geotechnical investigation performed at the site of the proposed Novi Expo Center in Novi, Michigan. The purpose of the investigation was to explore and evaluate general subsurface conditions at the site and provide recommendations for earthwork, building foundations, floor slabs, and pavements, as well as other important site development considerations.

The data obtained during this investigation along with our evaluations, analyses, and recommendations are presented in subsequent sections of this report.

#### 2.0 SITE CONDITIONS

The project site is located on the north side of Grand River Avenue, and the west side of Taft Road, in Section 16 of the City of Novi, Michigan. As shown on the Test Boring Location Plan, Plate 1, the site consists of an irregularly-shaped parcel covering approximately 54 acres. The overall plan dimensions of the site are approximately 1340 feet (east-west) by 930 feet (north-south). In addition to the two roads, the site is bordered by Interstate 96 (I-96) to the north and by private parcels to the west and southeast.

An existing single-story building at 46350 Grand River Avenue is located in the west-central portion of the site. Access to the building is provided by an existing paved driveway that extends north from Grand River Avenue to the building along the southern portion of the west property boundary. The northwestern portion of the site is currently occupied by a rest area maintained by the Michigan Department of Transportation (MDOT) and accessed from eastbound I-96. The remaining portions of the site are undeveloped. The eastern portion of the site is primarily covered by woods. The undeveloped parts of the western portion of the site are covered by areas of grass, weeds, and trees. Several wetland areas, ranging in size up to approximately 3 acres, are located throughout the site. The available information indicates that a borrow pit covering approximately 1.2 acres is located in the north-central portion of the site. We understand that the borrow pit was created by MDOT during the construction of the nearby expressway.



The ground surface topography is generally undulating, with some areas ranging from fairly flat to gently sloping. Based on information presented on a preliminary wetland mitigation plan made available to us, the ground surface ranges from about Elevation 980 near the middle of the western site boundary to approximately Elevation 928 at the edge of a wetland area located near the northeast corner of the site.

#### 3.0 PROPOSED DEVELOPMENT

We understand that current plans for the project include construction of one building approximately 26 feet in height, along with associated driveway and parking areas. The available information indicates that the footprint of the building will be on the order of 319,000 square feet in plan area. The building is planned to be a slab-on-grade structure without a basement. The typical bay size is expected to be on the order of 60 feet by 60 feet. Column loads are expected to be similar to those of a single-story warehouse of similar bay size; however, no additional loads from heavy equipment or overhead cranes are anticipated. As such, for purposes of this report we assume that building loads will be moderate. The available information also indicates that the proposed building will incorporate eight below-grade truck wells.

We understand that the existing building will remain, and that the new construction will abut the east side of the existing building. The current site layout information indicates that the building will be located at the northern end of the largest existing wetland on the site, and that a second small wetland is also located within the proposed building footprint. The remainder of the largest wetland area, as well as some of the smaller wetland areas, are located within proposed pavements. The project will include mitigation of wetland areas that will be removed as part of the development. At present, no development is planned for the eastern end of the site; however, this area may be used for future development.

#### 4.0 PREVIOUS INVESTIGATION BY OTHERS

Engineering & Testing Services, Inc. (ETS) performed a preliminary geotechnical investigation of a proposed 38-acre parcel encompassing the eastern, central, and southern portions of the



current site in 1988. The results of the ETS investigation were presented to Boco Enterprises in a report entitled "Preliminary Geotechnical Exploration and Engineering Report; Proposed 38-Acre Light Industrial Park Development; Novi, Michigan," ETS Project No. D4602, dated June 16, 1988.

Subsoil conditions encountered during the ETS investigation generally consist of a layer of topsoil 2 to 12 inches thick underlain by layers of silty clay or sandy clay soils that extend to the explored depths. Occasional sand seams and layers were encountered within the predominantly cohesive subsoils. Groundwater was encountered at depths ranging from about 7 to 14½ feet below existing ground surface at three of the eight locations explored by ETS.

#### 5.0 CURRENT FIELD INVESTIGATION

Subsurface conditions at the site were explored by NTH by drilling twelve test borings, designated as TB-101 through TB-112, at the approximate locations shown on the Test Boring Location Plan, Plate 1. The test borings were located in the field by NTH by reference to existing surface features using unsophisticated methods, and were not surveyed. As such, the locations shown on Plate 1 are considered to be approximate. It should be noted that this investigation did not include areas currently used by MDOT since we were not provided authorization for access. Also, as indicated earlier in this report, no development is currently planned for the eastern portion of the site, and as such, this area was not included in the present investigation.

The test borings were drilled by American Drilling and Testing Company under the full-time observation of a staff engineer with our firm. The borings were drilled using a CME 550X all-terrain rotary drilling rig, and were extended to depths ranging from about 5 to 15 feet below existing ground surface. Continuous flight, hollow-stem augers having an inside diameter of  $2\frac{1}{4}$  inches were used to advance the borings to the explored depths.

Within each test boring, soil samples were obtained at intervals of 2.5 feet within the upper 10 feet and at intervals of 5 feet below that depth. These samples were collected using a split-barrel sampler by the Standard Penetration Test method (ASTM D 1586), described on the attached



General Notes, Plate 2. The soil samples recovered from the test borings were sealed in glass containers and transported to our laboratory for further classification and testing. We will retain these samples for 60 days after the date of this report. At that time, we will dispose of the samples unless we are otherwise instructed.

After the completion of drilling, and following subsequent groundwater level observations, the test borings were backfilled with the excavated soil cuttings.

To explore the subsoil conditions within the wetland areas, our field representative drilled six hand auger borings, designated as HAB-1 through HAB-6, at the approximate locations shown on Plate 1. In addition, our field engineer probed the ground surface using a shovel at nine locations, designated as P-1 through P-9, in order to determine the topsoil thickness at other locations across the site. Soil samples were not collected in the hand auger borings or probed locations. Upon completion, the hand auger borings and soil probes were backfilled with the excavated soils.

#### 6.0 PRESENTATION OF DATA

We have evaluated the soil and groundwater conditions encountered in the test borings and have presented these conditions in the form of individual Logs of Test Boring, Figure Nos. 1 through 12 of the Appendix. In addition to subsoil stratification, the test boring logs present Standard Penetration Test results, observed groundwater levels, drilling and sampling information, and other pertinent data. Subsoil conditions encountered in the hand auger borings are presented on the Log of Hand Auger Borings, Figure No. 13. Topsoil thicknesses encountered at the soil probe locations are also presented on Figure No. 13. General Notes defining the nomenclature used on the logs and within the text of this report are presented on Plate 2. Elevations shown on the test boring and hand auger boring logs were estimated based on information presented on an available topographic site plan, and were not surveyed. As such, these elevations are considered to be approximate. We have prepared the test boring logs on the basis of field classification supplemented by laboratory testing.



The stratification indicated on the boring logs represents the subsurface conditions at the actual explored locations. Variations in subsurface conditions may occur between these locations. In addition, the stratigraphic lines represent the approximate boundary between soil types. The transition from one soil type to another may be more gradual than indicated.

#### 7.0 LABORATORY TESTING

Representative soil samples obtained from the test borings were subjected to laboratory testing to determine pertinent engineering characteristics of the subsoils. The testing program included the determination of natural moisture content, dry density, and unconfined compressive strength of selected cohesive samples. The results of laboratory tests are presented on the Tabulation of Laboratory Test Data, Figure No. 14, and on the respective Logs of Test Boring.

In addition to laboratory testing, field pocket penetrometer measurements were also made on cohesive soil samples obtained from the test borings and hand auger borings as an aid in evaluating their unconfined compressive strengths. The pocket penetrometer values are also indicated on the Logs of Test Boring.

#### 8.0 SUBSOIL CONDITIONS AND EVALUATIONS

On the basis of the information developed during the course of this investigation, the subsoils at the site exhibit some variation, but generally consist of a layer of topsoil underlain by layers of native cohesive soils to the explored depths. Within the predominantly cohesive subsoils, occasional layers of granular soils were encountered at the explored locations.

Topsoil was encountered in each of the test borings to depths generally ranging from about 6 to 12 inches; however, at two of the test boring locations topsoil was encountered to a depth of about 18 inches. At the soil probe locations, the topsoil layer was encountered to depths ranging from about 2 to 10 inches; however, at most of the probe locations the thickness of topsoil ranged from about 4 to 9 inches. Topsoil was encountered at one hand auger boring location to a depth



of about 6 inches. The topsoil generally consists of brown or dark brown silty sand or silty clay soils with roots and other organic matter.

Within the wetland areas where topsoil is not present, peat and other dark-colored soils that contain appreciable amounts of organic matter were encountered to depths ranging from about 4 to 20 inches below existing ground surface. Where relatively thin peat deposits were encountered, and at the location where topsoil was encountered, the upper soil are underlain by soft silty clay soils to depths ranging from about 10 to 20 inches.

Underlying the surficial topsoil, and underlying the peat, other organic, and near-surface soft silty clay soils within the wetland areas, predominantly cohesive strata consisting of native silty clay soils were encountered to the explored depths of the test borings. The silty clay soils exhibit consistencies ranging from stiff to hard; however, most of the cohesive soils exhibit very stiff to hard consistency.

Within the predominantly cohesive subsoils, layers of native granular soils were occasionally encountered at various depths. The native granular soils consist of silty sand and occasionally sand soils that generally are in a medium compact condition. However, layers of loose silty sand and sand were encountered in TB-104 and TB-109 to depths ranging from about 2 to 3 feet. The native granular soil layers appear to be isolated and discontinuous. Substantial layers of medium compact silty sand soils were encountered in TB-102 extending from directly below the topsoil at a depth of about 1 foot to a depth of roughly 9½ feet.

Based on visual observations, the surface topsoil is moderately organic and, as such, is not considered suitable for the support of building foundations, floor slabs, or pavements, nor is the topsoil considered suitable for engineered fill. However, this material can be used for landscaping in non-structural areas.

Within the wetland areas, the existing peat and other soils containing significant amounts of organic matter, as well as the soft silty clay soils, are not considered suitable for the support of building foundations, floor slabs, or pavements, nor are these materials considered suitable for



engineered fill. Based on the conditions encountered in the hand auger borings, we anticipate that roughly 11 to 20 inches of unsuitable materials will need to be removed from the existing wetland areas as part of the site preparation operations. Furthermore, we expect that the approximate average value of the thickness of unsuitable materials will be closer to 20 inches than to the middle of the range indicated above in most areas of the existing wetlands. It should be noted that deeper peat and soft clay deposits may exist in areas between those explored with the hand auger borings.

The stiff to hard cohesive soils and medium compact to granular soils underlying the topsoil and other unsuitable near-surface soils are considered suitable for the direct support of moderate foundation loads of the type anticipated for this project.

#### 9.0 GROUNDWATER CONDITIONS AND CONTROL

Groundwater level readings were made in each of the borings during drilling and at the completion of drilling operations. Groundwater was initially encountered at a depth of roughly 13½ feet within TB-103 and TB-107. Upon completion, groundwater was observed at a depth of about 11½ feet within TB-107, but TB-103 was dry. In addition, the remaining borings were dry during drilling and upon completion. It should be noted that groundwater was generally encountered in granular layers and seams within the predominantly cohesive strata.

Within the wetland areas, groundwater was encountered at depths ranging from about 1 to 2 feet below existing ground surface. In addition, our field representative noted the presence of ice covering selected areas of the wetlands at the time of our field exploration. As such, and based on the designation of these areas as wetlands, we expect that the groundwater level within the wetland areas will be higher during certain times of the year.

Based on the data obtained during this investigation, we do not anticipate that significant groundwater related problems will be encountered in relatively shallow construction excavations at most locations at the site. Groundwater infiltration and surface water accumulations in excavations that terminate within cohesive soils and in granular soils above the water table are



expected to be controllable with pumping from properly constructed sumps. The early installation of site underground utilities, and particularly the storm drainage system, is expected to help control near-surface groundwater in the vicinity of the existing wetlands that are to be removed.

#### 10.0 SITE PREPARATION

Details regarding grading across the entire site were not available at the writing of this report; however, information on the proposed building finished floor level relative to the existing ground surface indicates that up to about 5 feet of fill and 2 feet of cut will be require to reach finished floor elevation. For purposes of this report, we have assumed that finished grades in other areas of the site generally will be within a few feet of existing grades. Regardless of the amount of earthwork required, we recommend that all earthwork operations be performed under adequate specifications and be properly monitored in the field.

At the start of earthwork operations, the existing surface vegetation should be cleared and the surficial topsoil, peat, and any other organic or soft soils revealed by site clearing operations and in existing wetland areas within the development area should be removed in their entirety from within the proposed building and pavement areas. Any existing structures or part thereof designated for demolition should be removed along with their foundations as well as underground utilities and septic field, where they exist. Also, surface pavement that may exist in the MDOT-occupied portion of the property must be removed from within proposed building and pavement areas.

The subgrade resulting from the removal of topsoil, unsuitable soils, and other materials is expected to consist primarily of cohesive soils of varying consistencies and, to a lesser extent, granular soils of varying relative densities. Therefore, the entire subgrade within proposed fill areas should be thoroughly proof-rolled with a heavy rubber-tired vehicle such as a loaded scraper or loaded front-end loader. Any areas that exhibit excessive movement or instability during proof-rolling should be stabilized by aeration, drying, and recompaction, if weather conditions are favorable, or by removal of the yielding soils and replacement with engineered fill.



In addition to the proof-rolling operation, areas of exposed granular subgrade soils should be thoroughly proof-compacted using a medium weight, smooth drum vibratory roller making a minimum of ten passes in each of two perpendicular directions. This is intended to densify any near-surface loose granular soils, or granular soils that have been disturbed by site clearing and grading operations, thereby improving their load supporting capability.

Material for backfill or engineered fill required to achieve design grades should preferably consist of clean and well-graded granular soils. However, the on-site soils that are free of organic matter debris, and excessive moisture may be used for engineered fill materials provided that they are placed under favorable weather conditions to control moisture. Due to the relatively high moisture contents of some of the on-site clayey soils in some locations, significant periods of drying may be required before these soils can be properly compacted as engineered fill.

Fill should be placed in uniform horizontal layers that are not more than 12 inches in loose thickness and compacted to achieve a density of at least 95 percent of the maximum dry density as determined by the Modified Proctor compaction test (ASTM D 1557). All fill material should be placed and compacted at or near the optimum moisture content. Frozen material should not be used as fill, nor should fill be placed on a frozen subgrade.

In general, the site conditioning procedures discussed above are expected to result in fairly stable subgrade conditions throughout most of the site. However, the on-site soils, and in particular the cohesive soils, are expected to be sensitive to disturbance when wet or when subjected to construction activities. We recommend that the site grading be maintained so as to provide for rapid runoff of precipitation to reduce the potential for water infiltration. If instability occurs despite these precautions, additional corrective procedures may be required, such as localized stabilization or undercutting and replacement with an approximately 12-inch layer of crushed stone or crushed concrete.



#### 11.0 FOUNDATION RECOMMENDATIONS AND SITE CLASSIFICATION

Based on an evaluation of the subsurface data developed during the course of this investigation, we recommend that the proposed building be supported on a system of conventional spread and/or strip footings bearing on suitable native soils below the topsoil. Footings that bear upon the native stiff to hard cohesive soils, the native medium compact granular soils, or a pad of properly constructed and monitored engineered fill may be designed on the basis of a net allowable soil bearing pressure of 4000 pounds per square foot (psf). All strip footings should be at least 12 inches in width, and isolated spread footings should be at least 18 inches in their least dimension, regardless of the resulting bearing pressure.

Exterior footings should be established at a depth of at least 3.5 feet below exposed finished grade for protection against frost penetration. Interior footings not exposed to freezing conditions either during or after construction may be established at a shallower depth provided that suitable bearing soils are present. The determination of the required depth of excavation at each footing location should be performed by a qualified representative of the geotechnical engineer. All foundation excavations should be checked and tested to verify that adequate in-situ soil bearing pressures, compatible with the design value, are achieved.

Extreme care should be exercised when making excavations close to the existing building to prevent undermining or damage to the supported facilities. If excavations must be extended deeper than the existing foundations, provisions should be made either to underpin the existing foundations or to provide a lateral support system to prevent movement of the existing structure during nearby excavation.

Adjacent spread footings at different levels should be designed and constructed so that the least lateral distance between them is equal to or greater than the difference in their bearing levels. To achieve a change in the level of a strip footing, we recommend that the footing be gradually stepped at a grade no steeper than two units horizontal to one unit vertical.



If the recommendations outlined in this report are followed, total and differential settlements for the completed building are estimated to be within approximately 1 inch and ½ inch, respectively. We recommend that all footings be suitably reinforced to reduce the effects of normal differential settlements associated with local variations in subsoil conditions. Furthermore, the new building should be structurally separated from the existing building to allow for independent movement.

Based on our review of the conditions encountered in the test borings, as well as our knowledge of regional geology in the area, the site may be classified as Site Class D in accordance with the definitions given in Section 1615.1.1 of the 2000 International Building Code.

#### 12.0 SUPPORT OF FLOOR SLABS

The subgrade resulting from the satisfactory completion of site preparation operations can be used for the support of building floor slabs. We recommend that all concrete floor slabs be suitably reinforced and separated from the foundation system to allow for independent movement. If the floor slab is planned to be covered with tile or other materials that are sensitive to moisture changes, consideration should be given to the use of a 4-inch thick layer of sand underlain by a plastic sheet vapor barrier beneath the floor slab.

#### 13.0 PAVEMENT RECOMMENDATIONS

#### 13.1 SUBGRADE CONDITIONS

The subgrade resulting from the proper completion of site preparation operations can be used for the support of conventional flexible (asphalt) or rigid (concrete) pavements. The pavement subgrade soils are expected to consist primarily of silty clay and, to a lesser extent, sand and silty sand soils. The clayey soils are classified as CL, the sand soils are classified as SP, and the silty sand soils are classified as SM, according to the Unified Soil Classification System. While the sand soils are likely to have acceptable drainage characteristics and are only slightly susceptible to frost penetration, the silty clay and silty sand soils generally have fair to poor drainage characteristics and are considered to be susceptible to frost penetration. With proper



conditioning, we anticipate that an effective California Bearing Ratio (CBR) value of about 6 can be achieved with these soils.

#### 13.2 DESIGN DATA

We have developed four separate pavement designs that include two pavement uses, light duty and heavy duty, and service lives of 10 years and 15 years, for each. For each design we utilized a subgrade CBR value of 6 percent, based on estimated soil support values; a design reliability of 90 percent; standard deviation of 0.45; and a loss of serviceability of 2.0.

#### 13.3 LIGHT-DUTY PAVEMENT

For the light duty section, traffic is assumed to be primarily automobile loads with occasional light to medium truck traffic. Based on information you provided, the facility may be occupied approximately 4 out of 7 days per week. It is understood that the exposition facility can accommodate approximately 4000 persons and the banquet facility can accommodate 1600 persons. Based on the assumed traffic mix, we estimate a 10-year ESAL value of approximately 13,100. The 15-year ESAL value for the same mix of traffic is approximately 20,200.

The estimated traffic loading and the above design parameters were input into an AASHTO-based program. Based on this analysis, we recommend the following cross-sections:

#### 10-Year Service Life

- 1.5 inches of MDOT 3C bituminous wearing course over
- 1.5 inches of MDOT 4C bituminous leveling course over
- 6 inches of MDOT 21AA compacted crushed aggregate base course over
- prepared subgrade

#### 15-Year Service Life

- 1.5 inches of MDOT 3C bituminous wearing course over
- 1.5 inches of MDOT 4C bituminous leveling course over
- 8 inches of MDOT 21AA compacted crushed aggregate base course over



#### prepared subgrade

#### 13.4 HEAVY-DUTY PAVEMENT

We understand that a heavy-duty pavement section will be specified for the "ring-road", which provides access to the eight truck dock wells, the five at-grade service doors, and general access within and around the facility. In addition, we have assumed that there are approximately 2 shows per week, with in/out traffic, and that five trucks would access each of the thirteen service doors per show. This traffic loading, in combination with other site traffic such as delivery, refuse pick-up, and food service, as well as automobile traffic as presented above, would constitute the combined traffic for the "ring-road". Based on this predicted traffic loading, we estimate that the 10-year ESAL value would be approximately 474,000, and the 15-year ESAL value would be approximately 730,000 for the "ring-road".

Based on analysis with an AASHTO-based program, we recommend the following heavy-duty pavement sections:

#### 10-Year Service Life

- 2.0 inches of MDOT 3C bituminous wearing course over
- 2.5 inches of MDOT 4C bituminous leveling course over
- 10 inches of MDOT 21AA compacted crushed aggregate base course over
- prepared subgrade

#### 15-Year Service Life

- 1.5 inches of MDOT 3C bituminous wearing course over
- 3.5 inches of MDOT 4C bituminous leveling course placed in two lifts over
- 10 inches of MDOT 21AA compacted crushed aggregate base course over
- prepared subgrade

#### 13.5 ADDITIONAL CONSIDERATIONS

Design for drainage is of the utmost importance to reduce detrimental effects that may shorten the serviceable life of the pavement. The pavement surface should be properly sloped to promote



effective surface drainage and to prevent water ponding on the surface. We recommend that a minimum slope of 1 percent and preferably 1.5 percent be provided. In addition, the pavement subgrade should be similarly sloped to provide effective subsurface drainage.

It is recommend that "stub" or "finger" drains be provided around all catch basins and at other low parts of the pavement to minimize the accumulation of water within the subgrade soils. The subdrains should be protected with filter fabric and coarse aggregates to prevent the migration of soil fines into the drains.

At dumpster pick-up locations and truck wells, the pavement will be subjected to heavy concentrated wheel loads. This frequently results in rutting of asphalt pavements and ultimately in failure. Therefore, we recommend that a concrete pavement of at least 8 inches be used in these areas.

As previously mentioned, the cohesive soils are considered to be susceptible to disturbance from construction traffic, particularly during wet weather. If instability occurs, consideration should be given to stabilizing the disturbed soils by undercutting and backfilling with engineered fill, placing a stabilizing layer of coarse aggregate such as 1 to 3-inch crushed aggregate or crushed concrete, or using stabilization-grade geotextiles or geogrids.

#### 14.0 TEMPORARY EXCAVATIONS

Any excavations deeper than 5 feet, such as those that could be needed for underground utilities at the site, should be properly sloped or otherwise structurally retained to provide stable and safe working conditions. In areas where there is inadequate space to allow for proper side slopes for trenches and other excavations, vertical walls with properly designed and installed lateral bracing, or a combination of slopes and braced vertical walls may be used. In all cases, Michigan Department of Consumer and Industry Services requirements, *i.e.*, the Michigan Occupational Safety and Health Act (known as MIOSHA) and related regulations, must be followed and adequate protection provided for workers and adjacent structures.



Construction traffic and excavated material stockpiles should be kept away from excavations a minimum distance equal to the full depth of the excavation, unless the resulting surcharge loads are accounted for in the design of the lateral bracing system. The contractor's proposed excavations, support systems, and sequence of construction should be reviewed by a qualified engineer prior to allowing the contractor to commence work.

#### 15.0 LATERAL EARTH PRESSURES

The below-grade walls for the truck wells are anticipated to be constructed of reinforced concrete that will be formed and backfilled. The concrete walls are expected to be relatively rigid, but are not expected to be restrained against movement at the top and will be able to rotate. As such, if some movement of the top of wall is acceptable, the walls may be designed on the basis of "active" earth pressure conditions. Accordingly, based on an average active earth pressure coefficient of 0.33, an equivalent fluid pressure of 40 pounds per square foot per foot of depth (psf/ft) should be used for design of the walls, provided that subdrains are used to prevent the development of hydrostatic pressures on the walls, and 85 psf/ft if subdrains are not provided. If it is desired to limit the movement of the below-grade walls, "at rest" earth pressure conditions should be used. Equivalent fluid pressures of 60 psf/ft and 95 psf/ft should be used for the design of below-grade walls with or without subdrains, respectively, considering at rest earth pressure conditions.

Fill placed against below-grade walls should consist of granular soil with less than 10 percent passing the No. 200 sieve. It should be noted that surcharge loads applied behind walls can impose additional lateral pressures on below-grade walls. If the below-grade walls are subjected to such surcharge loads, they should be considered in the wall design. Horizontal loads resulting from vertical surcharge and foundation loads may be estimated as 50 percent of the vertical loading for the truck well walls.

Lateral earth pressures are also significantly influenced by the type and intensity of backfill operations. Therefore, we recommend that only relatively small compaction equipment be used to compact backfill placed against below-grade walls.



To resist the applied lateral earth and surcharge loading, an ultimate interface friction factor of 0.40 may be used between the base of the wall foundation and the stiff to hard silty clay soils, or the medium compact sand or silty sand soils. However, the horizontal stress at the foundation / bearing soil interface should not exceed an allowable adhesion value of 600 psf.

#### 16.0 DATA REVIEW AND FIELD MONITORING

The evaluations and recommendations presented in this report relative to site preparation and building foundations have been formulated on the basis of the information provided and/or the assumptions stated herein relating to the proposed development. Any significant changes in this information should be brought to our attention for review with respect to the prevailing subsurface conditions.

Experience indicates that the actual subsoil conditions at a site may vary from those generalized on the basis of test borings made at specific locations. Therefore, we recommend that NTH Consultants, Ltd. be retained to provide soil engineering services during the site preparation, excavation, and foundation phases of the proposed project. This is to observe compliance with the design concepts, specifications, and recommendations. Also, field monitoring allows design changes to be made in a timely manner in the event that subsurface conditions differ from those anticipated prior to the start of construction.

### 17.0 ADDITIONAL INVESTIGATION

As indicated earlier in this report, we did not explore the portion of the site currently occupied by MDOT because authorization to access this area was not provided. Accordingly, we recommend that additional investigation be performed in the MDOT-occupied portion of the site once access to the area has been secured, in order to supplement the data and recommendations developed during the current investigation.



#### 18.0 LIMITATIONS

This report is intended for specific use in the design of the proposed Novi Expo Center in the City of Novi, Michigan, as described in this report. It should be noted that the recommendations presented in this report may be subject to change following the availability of additional data regarding the proposed building construction. The work was performed in accordance with the prevailing standard of practice in this area at the time the work was performed. No other warranty, express or implied, is provided or intended.

The scope of the present investigation was limited to an evaluation of subsurface conditions for the support of building foundations, floor slabs, pavements, and other related aspects of development. No environmental, hydrological, chemical testing or analyses were performed as part of this geotechnical investigation.

Respectfully submitted,

NTH Consultants, Ltd.

Peter A. Margules, P.E.

et a. Margula

Project Engineer

Hosam S. Yaldo, P.E.

Project Manager



**APPENDIX** 

## NTH Consultants, Ltd.

A Neyer, Tiseo & Hindo Company

Silt

Clay

#### **GENERAL NOTES**

#### **TERMINOLOGY**

Unless otherwise noted, all terms utilized herein refer to the Standard Definitions presented in ASTM D 653.

#### PARTICLE SIZES

#### **CLASSIFICATION**

The major soil constituent is the principal noun, i.e., clay, silt, sand, gravel. The second major soil constituent and other minor constituents are reported as follows:

Boulders - Greater than 12 inches (305mm) 3 inches (76.2mm) to 12 inches (305mm) Cobbles Second Major Constituent **Minor Constituents** Gravel - Coarse 3/4 inches (19.05 mm) to 3 inches (76.2mm) (percent by weight) (percent by weight) Fine - No. 4 - 3/16 inches (4.75mm) to 3/4 inches (19.05 mm) - Coarse No. 10 (2.00mm) to No. 4 (4.75mm) Trace - 1 to 12% Trace - 1 to 12% Medium - No. 40 (0.425mm) to No. 10 (2.00mm) - No. 200 (0.074mm) to No. 40 (0.425mm) Fine Adjective - 12 to 35% Little - 12 to 23% 0.005mm to 0.074mm (clayey, silty, etc.) - Less than 0.005mm Some - 23 to 33% And - Over 35%

#### COHESIVE SOILS

If clay content is sufficient so that clay dominates soil properties, clay becomes the principal noun with the other major soil constituent as modified; i.e., silty clay. Other minor soil constituents may be included in accordance with the classification breakdown for cohesionless soils; i.e., silty clay, trace of sand, little gravel.

Consistency	Unconfined Compressive Strength (psf)	Approximate Range of (N)
Very Soft	Below 500	0 - 2
Soft	500 - 1000	3 - 4
Medium	1000 - 2000	5 - 8
Stiff	2000 - 4000	9 - 15
Very Stiff	4000 - 8000	16 - 30
Hard	8000 - 16000	31 - 50
Very Hard	Over 16000	Over 50

Consistency of cohesive soils is based upon an evaluation of the observed resistance to deformation under load and not upon the Standard Penetration Resistance (N).

#### COHESIONLESS SOILS

Density <u>Classification</u>	Relative <u>Density %</u>	Approximate Range of (N)
Very Loose	0 - 15	0 - 4
Loose	16 - 35	5 - 10
Medium Compact	36 - 65	11 - 30
Compact	66 - 85	31 - 50
Very Compact	86 - 100	Over 50

Relative density of cohesionless soils is based upon the evaluation of the Standard Penetration Resistance (N), modified as required for depth effects, sampling effects, etc.

#### SAMPLE DESIGNATIONS

AS - Auger Sample - directly from auger flight

BS - Miscellaneous Sample - bottle or bag

- Split Spoon Sample - ASTM D 1586

LS - Split Spoon Sample S with Liner Insert 3 inches in length

ST - Shelby Tube Sample - 3 inch diameter unless otherwise noted

PS - Piston Sample - 3 inch diameter unless otherwise noted

RC - Rock Core - NX core unless otherwise noted

CS - Continuous Sample - from rock core barrel or continuous sampling device

VS - Vane Shear

STANDARD PENETRATION TEST (ASTM D 1586) - A 2.0" outside-diameter, 1-3/8" inside-diameter, split barrel sampler is driven into undisturbed soil by means of a 140-pound weight falling freely through a vertical distance of 30 inches. The sampler is normally driven three successive 6-inch increments. The total number of blows required for the final 12 inches of penetration is the Standard Penetration Resistance (N).

Project Name:

Proposed Novi Expo Center

Project Location:

Novi, Michigan



# NTH NTH CONSULTANTS, LTD.

NTH Proj. No: 15-030094-00

Checked By: TAM

		SUBSURFACE PROFILE			;	SOIL S		E DA		
ELEV. (FT)	PRO- FILE	GROUND SURFACE ELEVATION: 968+/-	DEPTH (FT.)	SAMP. TYPE/ NO.	BLOWS/ 6"	STD.PEN. RESIST. (N)	MOIST. CONT. (%)	DRY DENS. (pcf)	UNCONF. COMP.ST. (psf)	HNu READING (ppm)
	17/7	TOPSOIL: Brown SILTY SAND 0.5  Medium Compact Brown SAND with Trace of Silt 1.5	-	LS-1	6 5 7	12	12.0	128.4	8500*	(рріп)
965		Hard Brown SILTY CLAY with Trace of Sand and Gravel 5.0		LS-2	5 8 10	18	12.0	120.4		
-	-	END OF BORING		L3-2	10	10			9000*	
960	-		10							
955	-									
- 8	-		15							
950	-		20							
945										
-			25							
940	-		_							
	-		30							
935										
			35							

Total Depth:

5 FT

Drilling Date:

02/03/03

Inspector: Contractor:

Driller:

M. Agbulos American Testing & Drilling Company

B. Rumpz

Water Level Observation:

No groundwater encountered; borehole dry upon completion.

\* - Pocket Penetrometer Value

**Drilling Method:** 

CME-550-X all terrain drilling rig with 2-1/4-inch inside-diameter,

Project Name:

Proposed Novi Expo Center

Project Location:

Novi, Michigan



## NTH CONSULTANTS, LTD.

NTH Proj. No: 15-030094-00

Checked By: MM

		OLIDOLIDEA OF DOCULE						Checke			
		SUBSURFACE PROFILE			CAMD		SOIL S				
ELEV. (FT)	PRO- FILE	GROUND SURFACE ELEVATION: 976+/-	DEF (F		SAMP. TYPE/ NO.	BLOWS/ 6"	STD.PEN. RESIST. (N)	MOIST. CONT. (%)	DRY DENS. (pcf)	UNCONF. COMP.ST. (psf)	HNu READING (ppm)
975		Medium Compact Brown SILTY SAND with Trace of	. 0	:=	LS-1	4 6 11	17				
-	22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Medium Compact Brown SILTY SAND with Trace of Clay and Gravel	- 5	- - 5	LS-2	6 11 12	23	7.3	109.3		
970		Medium Compact Brown SILTY SAND with Trace of	. 5	-	LS-3	6 7 9	16				
-		Gravel 9	.5	0	LS-4	4 5 7	12			9000*	
965		Very Stiff to Hard Gray SILTY CLAY with Trace to Little Sand, Trace of Gravel	-	-		4					
960		15 END OF BORING	.0 1	5	LS-5	7 10	17			7000*	
			2	-							
955			-	3- 3-							
950			- 2	5							
945			3	0 -				9			
940			3	5							

Total Depth:

15 FT

Drilling Date: Inspector:

02/03/03

Contractor:

M. Agbulos

American Testing & Drilling Company

Driller: B. Rumpz Water Level Observation:

No groundwater encountered; borehole dry upon completion.

Notes:

\* - Pocket Penetrometer Value

**Drilling Method:** 

CME-550-X all terrain drilling rig with 2-1/4-inch inside-diameter,

Project Name: Proposed Novi Expo Center

Project Location: Novi, Michigan



## NTH CONSULTANTS, LTD.

NTH Proj. No: 15-030094-00

Checked By: PUM

									7-271	
		SUBSURFACE PROFILE				SOIL S				
ELEV. (FT)	PRO- FILE	GROUND SURFACE ELEVATION: 976+/-	DEPTH (FT.)	SAMP. TYPE/ NO.	BLOWS/ 6"	STD.PEN. RESIST. (N)	MOIST. CONT. (%)	DRY DENS. (pcf)	UNCONF. COMP.ST. (psf)	HNu READING (ppm)
975		TOPSOIL: Brown SILTY CLAY with Trace to Little Sand  1.0			4				1	
		Hard Brown SILTY CLAY with Little Sand		LS-1	8 13	21			>9000*	
		4.0			9					
	2777	Compact Brown SILTY SAND with Trace of Gravel	5	LS-2	21	40	4.3	116.3		
970	1477	6.5			7 8					
				LS-3	11	19	10.6	134.7	7780	
					5					
965		Very Stiff Brown SILTY CLAY with Trace to Little Sand and Trace of Gravel	10	LS-4	10	16			7500*	
			-		6					
	11111	Medium Compact Gray SILTY SAND with Trace of Gravel	100	LS-5	7 7	14				
960		END OF BORING								
-										
955			20							
- 333										
-			25							
950										
			-							
-			-							
			30							
945			-							
			-							
940			35							
0.10			-							

Total Depth: 15 FT

Drilling Date: 02/03/03 Inspector:

Contractor: American Testing & Drilling Company

Driller: B. Rumpz Water Level Observation:

Groundwater encountered at 13.5 ft bgs;

borehole dry upon completion.

\* - Pocket Penetrometer Value

**Drilling Method:** 

CME-550-X all terrain drilling rig with 2-1/4-inch inside-diameter,

Project Name:

Proposed Novi Expo Center

Project Location:

Novi, Michigan



# NTH NTH CONSULTANTS, LTD.

NTH Proj. No: 15-030094-00

Checked By: Pam

		SUBSURFACE PROFILE			į.	SOIL S		E DA	TA	
ELEV. (FT)	PRO- FILE	GROUND SURFACE ELEVATION: 971+/-	DEPT (FT.)		BLOWS/ 6"	STD.PEN. RESIST. (N)	MOIST. CONT. (%)	DRY DENS. (pcf)	UNCONF. COMP.ST. (psf)	HNu READING (ppm)
970	2277 2277 2277 2277	TOPSOIL: Brown SILTY SAND 0  Loose Brown SILTY SAND with Trace of Gravel 2	0		3 3					
965		Hard Brown SILTY CLAY with Trace to Little Sand and Trace of Gravel	5	LS-1 LS-2	7 5 14 26	40	16.3	115.3	8500* >9000*	
3 2		6 Hard Gray SILTY CLAY with Trace of Sand and Gravel		LS-3	13 15 8 22	28			9000*	
960		Hard Brown SILTY CLAY with Trace to Little Sand and Trace of Gravel	10	LS-4	33 5 6	55			>9000*	
955		END OF BORING	0 15	LS-5	9	15			9000*	
950			20			~				
945			25	_]				12		
940			30							
935			35							

Total Depth:

15 FT

Drilling Date: Inspector:

02/03/03

Contractor:

M. Agbulos

American Testing & Drilling Company

Driller: B. Rumpz Water Level Observation:

No groundwater encountered; borehole dry upon completion.

\* - Pocket Penetrometer Value

**Drilling Method:** *CME-550-X all terrain drilling rig with 2-1/4-inch inside-diameter,* 

Project Name:

Proposed Novi Expo Center

Project Location:

Novi, Michigan



# NTH NTH CONSULTANTS, LTD.

NTH Proj. No: 15-030094-00

Checked By: PaM

		SUBSURFACE PROFILE				SOIL S			<u> </u>	
ELEV.	PRO-		DEPTH	SAMP.	BLOWS/	STD.PEN.		DRY	UNCONF.	HNu
(FT)	FILE	GROUND SURFACE ELEVATION: 974+/-	(FT.)	TYPE/ NO.	6"	RESIST. (N)	CONT. (%)	DENS. (pcf)	COMP.ST. (psf)	READING (ppm)
	133	TOPSOIL: Brown SILTY CLAY with Little Sand and Trace of Root Fibers			4					
				LS-1	6 9	15	13.4		>9000*	
		Hard Brown SILTY CLAY with Trace to Little Sand and Trace of Gravel	-		10					
970		ł .	5	LS-2	19 30	49			>9000*	
	اعلماما	END OF BORING				10			7 3000	
965			10							
			- 10							
960										
300			15							
			-							
955			-							
			20							
			-							
			-							
950			-							
			25			×				
		,	-							
			-							
945										
			30							
			-							
			-							
940										
			35							

Total Depth:

5 FT

Drilling Date:

02/03/03

Inspector:

M. Agbulos

Contractor:

American Testing & Drilling Company

Driller: B. Rumpz Water Level Observation:

No groundwater encountered; borehole dry upon completion.

\* - Pocket Penetrometer Value

**Drilling Method:** 

CME-550-X all terrain drilling rig with 2-1/4-inch inside-diameter,

Project Name:

Proposed Novi Expo Center

Project Location:

Novi, Michigan



# NTH NTH CONSULTANTS, LTD.

NTH Proj. No: 15-030094-00

Checked By: MM

		SUBSURFACE PROFILE				SOIL S		E DA	TA	
ELEV. (FT)	PRO- FILE	GROUND SURFACE ELEVATION: 980+/-	DEPTH (FT.)	SAMP. TYPE/ NO.	BLOWS/ 6"	STD.PEN. RESIST. (N)	MOIST. CONT. (%)	DRY DENS. (pcf)	UNCONF. COMP.ST. (psf)	HNu READING (ppm)
		TOPSOIL: Brown SILTY SAND with Trace of Root Fibers Hard Brown SILTY CLAY with Trace to Little Sand, Trace of Gravel  3.0		LS-1	8 10 14	24	15.2	111.7	>9000*	(ррш)
975		Medium Compact Brown SILTY SAND with Trace of Gravel 5.0	5	LS-2	6 7	13				
		END OF BORING								
970			10							
965			15							
960			20							
955			25			289	-			
950			30							
945			35							

Total Depth:

5 FT

Drilling Date:

02/03/03

Inspector:

M. Agbulos

Contractor:

American Testing & Drilling Company

Driller: B. Rumpz Water Level Observation:

No groundwater encountered; borehole dry upon completion.

\* - Pocket Penetrometer Value

**Drilling Method:** *CME-550-X all terrain drilling rig with 2-1/4-inch inside-diameter,* 

Project Name:

Proposed Novi Expo Center

Project Location:

Novi, Michigan



## NTH CONSULTANTS, LTD.

NTH Proj. No: 15-030094-00

Checked By: Pam

		SUBSURFACE PROFILE				SOIL S		E DA		
ELEV. (FT)	PRO- FILE	GROUND SURFACE ELEVATION: 974+/-	DEPTH (FT.)	SAMP. TYPE/ NO.	BLOWS/ 6"	STD.PEN. RESIST. (N)	MOIST. CONT. (%)	DRY DENS. (pcf)	UNCONF. COMP.ST. (psf)	HNu READING (ppm)
	- 122	TOPSOIL: Dark Brown SILTY SAND with Trace of Root Fibers 1.5 Hard Brown SILTY CLAY with Little Sand and Trace of Gravel 3.0	] .	LS-1	18 17 6	23	(70)	(рсі)	9000*	(ррпі)
970	7777	Medium Compact Brown SILTY SAND with Trace of Gravel 5.5	5	LS-2	4 7 7	14	6.7	105.3		
				LS-3	4 8 14	22	14.5	121.4	11340	
965		Hard Brown and Gray SILTY CLAY with Trace of Sand and Gravel	10	LS-4	7 12 19	31			>9000*	
960		14.0  Medium Compact Gray SILTY SAND 15.0	+	LS-5	7 8 6	14			6000*	
	-	END OF BORING		-						
955			20							
950			25							
945			30							
940			35							

Total Depth:

15 FT

Drilling Date:

02/03/03

Inspector:

M. Agbulos

Contractor: American Testing & Drilling Company Driller:

B. Rumpz

Water Level Observation:

Groundwater encountered 13.5 ft bgs;

at 11.6 ft bgs upon completion.

\* - Pocket Penetrometer Value

**Drilling Method:** 

CME-550-X all terrain drilling rig with 2-1/4-inch inside-diameter,

Project Name:

Proposed Novi Expo Center

Project Location:

Novi, Michigan



# NTH CONSULTANTS, LTD.

NTH Proj. No: 15-030094-00

Checked By: TAM

		SUBSURFACE PROFILE					SOIL S	AMPI			
ELEV.	PRO-		,	DEPTH	SAMP.	BLOWS/	STD.PEN.	MOIST.	DRY	UNCONF.	HNu
(FT)	FILE	GROUND SURFACE ELEVATION: 971+	-/-	(FT.)	TYPE/ NO.	6"	RESIST. (N)	CONT. (%)	DENS. (pcf)	COMP.ST. (psf)	READING (ppm)
970		TOPSOIL: Brown SILTY CLAY with Trace to Little Sand, Trace of Root Fibers and Vegetation	1.5		LS-1	4 4 7	11			5000*	
		Stiff to Very Stiff Brown and Gray SILTY CLAY with Trace of Sand	4.5			4 4					
965		Stiff to Very Stiff Brown and Gray SILTY CLAY with		5	LS-2 LS-3	2 5 5	10	24.2	105.3	3480	
ei ei		Trace of Sand and Occasional Sand Seams	9.5	10	LS-3	3 3 4	7			5000*	
960		Loose Gray SILTY SAND	12.0	- 10	20 4		,				
		Very Stiff Gray SILTY CLAY with Trace of Sand and Gravel  END OF BORING	15.0	15	LS-5	4 5 7	12			5000*	
955		LIND OF BOILING									
950				20			9				
945				25							
940				30							>
935				35	Ī						

Total Depth:

15 FT

Drilling Date:

02/03/03

Inspector:

M. Agbulos

Contractor:

American Testing & Drilling Company

Driller: B. Rumpz Water Level Observation:

No groundwater encountered; borehole dry upon completion.

Notes:

\* - Pocket Penetrometer Value

**Drilling Method:** *CME-550-X all terrain drilling rig with 2-1/4-inch inside-diameter,* 

Project Name:

Proposed Novi Expo Center

Project Location:

Novi, Michigan



# NTH NTH CONSULTANTS, LTD.

NTH Proj. No: 15-030094-00

Checked By: Tam

		SUBSURFACE PROFILE					SOIL S			TA	
ELEV. (FT)	PRO- FILE	GROUND SURFACE ELEVATION: 972-	<b>⊦</b> /-	DEPTH (FT.)	SAMP. TYPE/ NO.	BLOWS/ 6"	STD.PEN. RESIST. (N)	MOIST. CONT. (%)	DRY DENS. (pcf)	UNCONF. COMP.ST. (psf)	HNu READING (ppm)
970	7777	TOPSOIL: Brown SILTY SAND  Loose Brown SAND with Trace of Silt, Gravel and Roots	3.0		LS-1	5 5 4	9	(70)	(50.)	(рог)	(рртт)
		Hard Brown SILTY CLAY with Little Sand	5.5	5	LS-2	6 7 10	17			>9000*	
965					LS-3	6 7 7	14	12.5	115.3	5000*	
		Stiff to Very Stiff Brown SILTY CLAY with Trace to Little Sand and Trace of Gravel		10	LS-4	5 5 6	11			5000*	
960	- 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		15.0	15	LS-5	5 5 7	12			3500*	
955	-	END OF BORING	13.0	- 15	10-0		12			3300	
950	-			20							
945				25							
940		æ		30					,		
-	-			35							

Total Depth:

15 FT

Drilling Date: Inspector:

02/03/03

M. Agbulos

Contractor:

American Testing & Drilling Company

Driller: B. Rumpz

No groundwater encountered; borehole dry upon completion.

Water Level Observation:

\* - Pocket Penetrometer Value

**Drilling Method:** 

CME-550-X all terrain drilling rig with 2-1/4-inch inside-diameter,

Project Name:

Proposed Novi Expo Center

Project Location:

Novi, Michigan



# NTH NTH CONSULTANTS, LTD.

NTH Proj. No: 15-030094-00

Checked By: MM

		SUBSURFACE PROFILE	SOIL SAMPLE DATA							
ELEV. (FT)	PRO- FILE	GROUND SURFACE ELEVATION: 973+-	DEPTH (FT.)	SAMP. TYPE/ NO.	BLOWS/ 6"	STD.PEN. RESIST. (N)	MOIST. CONT. (%)	DRY DENS. (pcf)	UNCONF. COMP.ST.	HNu READING
		Very Stiff Brown SILTY CLAY with Trace of Sand		LS-1	6 5 9	14	(70)	(рсі)	(psf) 5500*	(ppm)
970		Hard Brown SILTY CLAY with Little Sand and Trace of Roots END OF BORING	  5	LS-2	9 18 24	42			9000*	
965	-		10							
960			15							
955			20							
950	-		25							
945			30							
940	-		35							

Total Depth:

Drilling Date: Inspector:

5 FT 02/03/03

M. Agbulos

Contractor:

American Testing & Drilling Company

Driller:

B. Rumpz

Water Level Observation:

No groundwater encountered; borehole dry upon completion.

\* - Pocket Penetrometer Value

**Drilling Method:** *CME-550-X all terrain drilling rig with 2-1/4-inch inside-diameter,* 

Project Name:

Proposed Novi Expo Center

Project Location:

Novi, Michigan



# NTH CONSULTANTS, LTD.

NTH Proj. No: 15-030094-00

Checked By: MM

		SUBSURFACE PROFILE	SOIL SAMPLE DATA								
ELEV. (FT)	PRO- FILE	GROUND SURFACE ELEVATION: 971+/-	DEPTH (FT.)	SAMP. TYPE/ NO.	BLOWS/ 6"	STD.PEN. RESIST. (N)	MOIST. CONT. (%)	DRY DENS. (pcf)	UNCONF. COMP.ST. (psf)	HNu READING (ppm)	
970		TOPSOIL: Brown SILTY CLAY with Trace to Little 0.5 Sand Very Stiff Brown SILTY CLAY with Trace of Sand and Root Fibers 3.0	-	LS-1	4 4 8	12	, ,		7500*	- VEF :: V	
965		Hard Gray SILTY CLAY with Trace of Sand and Occasional Silt Seams 5.0 END OF BORING		LS-2	9 16 17	33			9000*		
							li te i				
960			10								
955			15								
950			20								
945			25								
940			30								
935			35								

Total Depth: 5 FT

Drilling Date: 02/03/03

Inspector:

Contractor:

M. Agbulos

American Testing & Drilling Company

Driller: B. Rumpz Water Level Observation:

No groundwater encountered; borehole dry upon completion.

\* - Pocket Penetrometer Value

Drilling Method: CME-550-X all terrain drilling rig with 2-1/4-inch inside-diameter,

Project Name:

Proposed Novi Expo Center

Project Location:

Novi, Michigan



# **NTH** NTH CONSULTANTS, LTD.

NTH Proj. No: 15-030094-00

Checked By: Jam

		SUBSURFACE PROFILE	SOIL SAMPLE DATA								
ELEV.	PRO-		DEPTH	SAMP.	BLOWS/	STD.PEN.	MOIST.	DRY	UNCONF.	HNu	
(FT)	FILE	GROUND SURFACE ELEVATION: 971+/-	(FT.)	TYPE/ NO.	6"	RESIST. (N)	CONT. (%)	DENS. (pcf)	COMP.ST. (psf)	READING (ppm)	
970	1111	TOPSOIL: Dark Brown SILTY SAND with Trace of Root Fibers			4					31.1	
				104	6	40	40.0		00004		
1		Hard Brown SILTY CLAY with Trace to Little Sand and		LS-1	7	13	13.2		8000*		
-		Trace of Gravel			5 12						
-	1333	. 5.0 END OF BORING	5	LS-2	19	31			>9000*		
965	-	SOURCE STATE STATE STATE	-								
-			} -								
•			-							,	
1			10								
960											
-	-		-								
-	-		-								
055	-		15								
955			-								
										-	
			20								
950											
-	-		-								
-			-								
-			25								
945			25								
1											
			30								
940											
+											
1			-								
•			35								
935			- 50								

Total Depth:

5 FT

Drilling Date:

02/03/03

Inspector:

M. Agbulos

Contractor: American Testing & Drilling Company Driller:

B. Rumpz

Water Level Observation:

No groundwater encountered; borehole dry upon completion.

\* - Pocket Penetrometer Value

**Drilling Method:** 

CME-550-X all terrain drilling rig with 2-1/4-inch inside-diameter,

PROJECT NO: 15-030094-00 NTH CONSULTANTS, LTD. SHEET 1 OF LOG OF HAND AUGER BORINGS **GROUND** HAB **DEPTH** SURFACE SOIL DESCRIPTION REMARKS NO. (FT) ELEV. DARK BROWN PEAT HAB-1 967± 0.0 - 1.31.3 - 1.5**BROWN SILTY SAND** [GROUNDWATER ENCOUNTERED AT 1.3± FEET] HAB-2 970± 0.0 - 0.3PEAT 0.3 - 1.7BLACK SILTY CLAY WITH TRACE OF SAND 1.7 - 4.5STIFF GRAY SILTY CLAY WITH TRACE OF SAND AND ORGANIC MATTER [GROUNDWATER ENCOUNTERED AT 2.0± FEET] 0.0 - 0.3PEAT HAB-3 969± 0.3 - 0.8SOFT BROWN SILTY CLAY WITH TRACE OF SAND 0.8 - 1.6DARK BROWN AND BLACK SILTY CLAY WITH TRACE OF SAND AND ORGANIC MATTER 1.6 - 3.2BROWN AND GRAY SILTY CLAY WITH TRACE OF SAND 3.2 - 3.4SAND [GROUNDWATER ENCOUNTERED AT 1.2± FEET] 0.0 - 1.5HAB-4 969+ BROWN AND BLACK SILTY CLAY WITH TRACE OF SAND AND ORGANIC MATTER 1.5 - 2.6STIFF GRAY SILTY CLAY WITH TRACE OF SAND AND ORGANIC MATTER PP = 1.52.6 - 3.0**BROWN AND GRAY SILTY SAND** [GROUNDWATER ENCOUNTERED AT 2.0± FEET] 0.0 - 0.3PEAT 970± HAB-5 0.3 - 0.9SOFT BROWN SILTY CLAY WITH TRACE OF SAND 0.9 - 4.3STIFF BROWN AND GRAY SILTY CLAY WITH TRACE OF SAND AND ORGANIC MATTER 4.3 - 4.5SAND [GROUNDWATER ENCOUNTERED AT 1.0± FEET] HAB-6 970± 0.0 - 0.5TOPSOIL 0.5 - 1.7SOFT BROWN SILTY CLAY 1.7 - 4.0STIFF BROWN AND GRAY SILTY CLAY WITH TRACE OF SAND [GROUNDWATER ENCOUNTERED AT 1.0± FEET] 972± 0.0 - 0.3TOPSOIL: DARK BROWN SILTY SAND P-1 P-2 972± 0.0 - 0.7TOPSOIL: DARK BROWN SILTY SAND TOPSOIL: BROWN SILTY SAND P-3 967± 0.0 - 0.4TOPSOIL: BROWN SILTY SAND P-4 965± 0.0 - 0.2

DATE: JANUARY 29, 2003

#### NOTES:

- HAND AUGER BORINGS BACKFILLED WITH EXCAVATED SOIL MATERIALS.
- SOIL CLASSIFICATION BASED SOLELY ON VISUAL OBSERVATION.
- PP IS POCKET PENETROMETER VALUE IN TONS PER SQUARE FOOT (TSF).
- [4] DEPTHS AT WHICH GROUNDWATER WAS ENCOUNTERED ARE APPROXIMATE.

DRILLED BY: M. AGBULOS

FIGURE NO: 13

PROJE	CT NO: 15	-030094-00	NTH CONSULTANTS, LTD.	SHEET 2 OF 2				
			LOG OF HAND AUGER BORINGS					
HAB NO.	GROUND SURFACE ELEV.	DEPTH (FT)	SOIL DESCRIPTION	REMARKS				
P-5	971±	0.0 - 0.3	TOPSOIL: DARK BROWN SILTY SAND					
P-6	973±	0.0 – 0.5	TOPSOIL: BROWN SILTY SAND					
P-7	972±	0.0 - 0.8	TOPSOIL: DARK BROWN SILTY SAND					
P-8	978±	0.0 - 0.5	TOPSOIL: Brown SILTY SAND					
P-9	972±	0.0 - 0.7	TOPSOIL: BROWN SILTY SAND					

#### NOTES:

- [1] HAND AUGER BORINGS BACKFILLED WITH EXCAVATED SOIL MATERIALS.
- [2] SOIL CLASSIFICATION BASED SOLELY ON VISUAL OBSERVATION.
- [3] PP IS POCKET PENETROMETER VALUE IN TONS PER SQUARE FOOT (TSF).
- [4] DEPTHS AT WHICH GROUNDWATER WAS ENCOUNTERED ARE APPROXIMATE.

DRILLED BY: M. AGBULOS DATE: JANUARY 29, 2003 FIGURE NO: 13

~			UNIFIED SOIL CLASSIFICATION	ŀ	I	1 1	ł	ı	ı	l	1	I	ı		
1 OF		Гоѕѕ ои Ісиітіои (%)		1	ŀ	1 1	ł	ł	1	1	1	ŀ	1		
SHEET			ŀ	1	1 1	ł	ł	1	1	1	ŀ	1			
		RG %)	ХЭДИ УТІСІТУ ІИРЕХ	1	I	1 1	I	ŀ	I	I	1	ŀ	l		
		ATTERBERG LIMITS (%)	РСАБТІС ГІМІТ	I	ı	1 1	1	1	Î	I	1	I _	ı		
		AT	רוסטום רואוד	ł	ı	1 1	Ţ	1	I	I	1	ŀ	ŀ		
		(%)	GRAVEL	ı	1	1 1	1	1	I	I	ı	ŀ	ı		
	TA	TION	COARSE SAND	I	1	1 1	Ī	I	ı	I	1	1	ŀ	R	
NTH CONSULTANTS, LTD.	DATA	DISTRIBUTION (%)	MEDIUM SAND	1	1	1 1	Ī	ŀ	1	1	I	1	ŀ		
	TEST	0.000	PINE SAND	ı	1	1 1	1	1	ı	1	ı	ı	I	0	
	LABORATORY T	E SIZE	SILT	1	I	1 1	L	ŀ	ı	1	1	ı	l		
		PARTICLE	YAJO	l	ı	1 1	Ĩ	1	I	I	ı	1	Ī		
	ORA	/d	Corroids	1	Ī	1 1	Ī	ł	ì	1	ŀ	1	ŀ		
	OF	Ревмедентту (см/sec)		1				l	l	I		1	l		
	ATIOI	λLIS	IN-PLACE DRY DENSITY (LBS/CU.FT)		109.3	116.3	115.3	ŀ	111.7	105.3	105.3	115.3	1	=	
	TABULATION		NATURAL WATER CONTENT  (% OF DRY WEIGHT)	12.0	7.3	4.3	16.3	13.4	15.2	6.7	24.2	12.5	13.2		
		(	FAILURE STRAIN (%)		I	12.1	I	ŀ	ı	13.2	15.0	1	1		
		HTON	UNCONFINED COMPRESSIVE STRENGTH (PSF)		ł	7780	I	1	l	-11340	3480	1	1		
15-030094-00		370	ELEVATION OF SAMPLE TIP (FT)		971.0	971.0 968.5	0.996	971.5	977.5	969.0	0.996	964.5	968.5		
	100	ql	DEPTH OF SAMPLE 7	2.5	5.0	5.0	2.0	2.5	2.5	5.0	5.0	7.5	2.5		
			ЯЗАМОИ ЗЛЧМАВ	LS-1	LS-2	LS-2 LS-3	LS-2	LS-1	LS-1	LS-2 LS-3	LS-2	LS-3	LS-1		
PROJECT NO.			BORING / TEST PIT /	TB-101	TB-102	TB-103	TB-104	TB-105	TB-106	TB-107	TB-108	TB-109	TB-112		

38955 Hills Tech Drive Farmington Hills, MI 48331-3432 248.553.6300 248.324.5179 Fax

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520 S. Creyts Road, Suite A Lansing, MI 48917 517.321.6900 517.327.8500 Fax

4635 44th Street SE, Suite C-180 Grand Rapids, MI 49512 616.957.3690 616.575.1000 Fax

### NTH Consultants, Ltd.

A Neyer, Tiseo & Hindo Company

#### **GENERAL NOTES**

#### **TERMINOLOGY**

Unless otherwise noted, all terms utilized herein refer to the Standard Definitions presented in ASTM D 653.

#### PARTICLE SIZES

#### CLASSIFICATION The major soil constituent is the principal noun, i.e., clay,

silt, sand, gravel. The second major soil constituent and other minor constituents are reported as follows: Boulders - Greater than 12 inches (305mm) 3 inches (76.2mm) to 12 inches (305mm) Cobbles Second Major Constituent **Minor Constituents** Gravel - Coarse 3/4 inches (19.05 mm) to 3 inches (76.2mm) (percent by weight) (percent by weight) Fine No. 4 - 3/16 inches (4.75mm) to 3/4 inches (19.05 mm) No. 10 (2.00mm) to No. 4 (4.75mm) Trace - 1 to 12% Sand Coarse Trace - 1 to 12% No. 40 (0.425mm) to No. 10 (2.00mm) Medium No. 200 (0.074mm) to No. 40 (0.425mm) Little - 12 to 23% Fine Adjective - 12 to 35% Silt 0.005mm to 0.074mm (clayey, silty, etc.) Less than 0.005mm Clay Some - 23 to 33% And - Over 35%

#### COHESIVE SOILS

If clay content is sufficient so that clay dominates soil properties, clay becomes the principal noun with the other major soil constituent as modified; i.e., silty clay. Other minor soil constituents may be included in accordance with the classification breakdown for cohesionless soils; i.e., silty clay, trace of sand, little gravel.

Consistency	Unconfined Compressive <u>Strength (psf)</u>	Approximate Range of (N)
Very Soft	Below 500	0 - 2
Soft	500 - 1000	3 - 4
Medium	1000 - 2000	5 - 8
Stiff	2000 - 4000	9 - 15
Very Stiff	4000 - 8000	16 - 30
Hard	8000 - 16000	31 - 50
Very Hard	Over 16000	Over 50

Consistency of cohesive soils is based upon an evaluation of the observed resistance to deformation under load and not upon the Standard Penetration Resistance (N).

#### COHESIONLESS SOILS

Density Classification	Relative <u>Density %</u>	Approximate Range of (N)
Very Loose	0 - 15	0 - 4
Loose	16 - 35	5 - 10
Medium Compact	36 - 65	11 - 30
Compact	66 - 85	31 - 50
Very Compact	86 - 100	Over 50

Relative density of cohesionless soils is based upon the evaluation of the Standard Penetration Resistance (N), modified as required for depth effects, sampling effects, etc.

#### SAMPLE DESIGNATIONS

AS - Auger Sample - directly from auger flight

BS - Miscellaneous Sample - bottle or bag

Split Spoon Sample - ASTM D 1586

LS - Split Spoon Sample S with Liner Insert 3 inches in length ST - Shelby Tube Sample - 3 inch diameter unless otherwise noted

PS - Piston Sample - 3 inch diameter unless otherwise noted

RC - Rock Core - NX core unless otherwise noted

CS - Continuous Sample - from rock core barrel or continuous sampling device

VS - Vane Shear

STANDARD PENETRATION TEST (ASTM D 1586) - A 2.0" outside-diameter, 1-3/8" inside-diameter, split barrel sampler is driven into undisturbed soil by means of a 140-pound weight falling freely through a vertical distance of 30 inches. The sampler is normally driven three successive 6-inch increments The total number of blows required for the final 12 inches of penetration is the Standard Penetration Resistance (N).

PROJE	CT NO: 15	-030094-01	NTH CONSULTANTS, LTD.	SHEET 1 OF 8
TEST PIT NO.	GROUND SURFACE ELEV.	DEPTH (FT)	SOIL DESCRIPTION	REMARKS
TP-1	976 ±	0.0-0.4 0.4-1.0 1.0-2.0 2.0-4.0	PAVEMENT: ASPHALT TOPSOIL: BROWN SILTY SAND WITH ROOTS BROWN SILTY SAND WITH ROOTS BROWN SAND WITH TRACE OF SILT & GRAVEL [NO GROUNDWATER ENCOUNTERED]	BS-1 @ 3.0 ft bgs
TP-2	972 ±	0.0-0.3 0.3-3.5	TOPSOIL: DARK BROWN <b>SILTY SAND</b> WITH ROOT FIBERS BROWN <b>SILTY SAND</b> WITH TRACE OF GRAVEL [NO GROUNDWATER ENCOUNTERED]	BS-1 @ 3.5 FT BGS
TP-3	974 ±	0.0-0.5 0.5-2.0 2.0-3.0	TOPSOIL: BROWN SILTY SAND WITH TRACE OF CLAY & ROOTS STIFF BROWN SILTY CLAY WITH TRACE OF SAND & ROOTS VERY STIFF BROWN & GRAY SILTY CLAY WITH TRACE OF SAND [NO GROUNDWATER ENCOUNTERED]	BS-1 @ 1.0 FT BGS BS-2 @ 3.0 FT BGS; PP = 2.0
TP-4	974 ±	0.0-1.0 1.0-1.5 1.5-2.5	TOPSOIL: BROWN SILTY SAND WITH ROOT FIBERS BROWN SAND WITH TRACE TO LITTLE GRAVEL VERY STIFF BROWN & GRAY SILTY CLAY WITH TRACE OF SAND [NO GROUNDWATER ENCOUNTERED]	BS-1 @ 1.0 FT BGS BS-2 @ 2.5 FT BGS; PP = 3.0
TP-5	976 ±	0.0-0.3 0.3-2.5 2.5-3.0	TOPSOIL: DARK BROWN <b>SILTY SAND</b> WITH ROOT FIBERS BROWN <b>SAND</b> WITH TRACE OF SILT & GRAVEL HARD BROWN & GRAY <b>SILTY CLAY</b> WITH TRACE OF SAND & GRAVEL [NO GROUNDWATER ENCOUNTERED]	BS-1 @ 1.5 FT BGS PP = 4.5
TP-6	974 ±	0.0-1.0 1.0-2.0	TOPSOIL: DARK BROWN <b>SILTY SAND</b> WITH ROOT FIBERS BROWN <b>SAND</b> WITH TRACE OF SILT & GRAVEL [NO GROUNDWATER ENCOUNTERED]	BS-1 @ 0.5 FT BGS
TP-7	971 ±	0.0-1.0 1.0-2.0	TOPSOIL: BROWN <b>SILTY SAND</b> WITH TRACE OF CLAY & ROOTS  VERY STIFF TO HARD BROWN <b>SILTY CLAY</b> WITH TRACE OF SAND & OCCASIONAL SAND SEAMS  [ NO GROUNDWATER ENCOUNTERED ]	BS-1 @ 0.8 FT BGS PP = 4.0

- TEST PITS BACKFILLED WITH EXCAVATED MATERIAL.
- [2] TEST PIT EXCAVATION INSPECTED BY M. AGBULOS OF NTH CONSULTANTS, LTD.
- SOIL CLASSIFICATION BASED SOLELY ON VISUAL OBSERVATION.
- [4] PP = POCKET PENETROMETER VALUE IN TONS PER SQUARE FOOT
- [5] BGS = BELOW GROUND SURFACE

**EXCAVATED BY:** J & G EXCAVATING, INC.

**DATE:** NOVEMBER 14 & 17, 2003

PROJE	CT NO: 15-	-030094-01	NTH CONSULTANTS, LTD.	SHEET 2 OF 8			
			LOG OF TEST PITS				
TEST PIT NO.	GROUND SURFACE ELEV.	DEPTH (FT)	SOIL DESCRIPTION	REMARKS			
TP-8	971 ±	0.0-0.5 0.5-1.5 1.5-4.0 4.0-5.5	TOPSOIL: BROWN SILTY CLAY WITH TRACE TO LITTLE SAND & TRACE OF ROOTS MEDIUM BROWN & GRAY SILTY CLAY WITH LITTLE SAND & TRACE OF ROOTS VERY STIFF BROWN & GRAY SILTY CLAY WITH TRACE OF SAND HARD GRAY SILTY CLAY WITH TRACE OF SAND [ NO GROUNDWATER ENCOUNTERED ]	BS-1 @ 1.0 FT BGS PP = 2.5 PP = 4.0			
TP-9	977 ±	0.0-0.3 0.3-1.5 1.5-2.0	TOPSOIL: DARK BROWN <b>SILTY SAND</b> WITH ROOTS  VERY STIFF BROWN <b>SILTY CLAY</b> WITH TRACE TO LITTLE SAND & TRACE OF ROOT FIBERS  VERY STIFF BROWN & GRAY <b>SILTY CLAY</b> WITH TRACE OF SAND  [ NO GROUNDWATER ENCOUNTERED ]	BS-1 @ 1.0 FT BGS PP = 2.0 PP = 2.5			
TP-10	970 ±	0.0-1.5 1.5-2.0 2.0-4.0 4.0-5.0	TOPSOIL: DARK BROWN & BLACK SILTY CLAY WITH TRACE OF SAND, ROOTS & ORGANIC MATTER  SOFT GRAY SILTY CLAY WITH TRACE OF SAND  VERY STIFF GRAY SILTY CLAY WITH TRACE OF SAND & ROOT FIBERS  BROWN & GRAY SILTY SAND  [GROUNDWATER ENCOUNTERED AT 4.0 FT BGS]	BS-1 @ 1.0 FT BGS BS-2 @ 1.5 FT BGS; PP < 0.5 BS-3 @ 3.0 FT BGS; PP = 2.0			
TP-11	970 ±	0.0-2.0 2.0-5.5 5.5-6.0	TOPSOIL: DARK BROWN <b>SILTY CLAY</b> WITH TRACE TO LITTLE ORGANIC MATTER MEDIUM TO STIFF BROWN & GRAY <b>SILTY CLAY</b> WITH TRACE OF SAND & ROOT FIBERS GRAY <b>SAND</b> WITH TRACE OF <b>S</b> ILT [GROUNDWATER ENCOUNTERED AT 4.0 FT BGS]	BS-1 @ 1.0 FT BGS PP = 1.0			
TP-12	970 ±	0.0-2.0 2.0-3.5	TOPSOIL: DARK BROWN <b>SILTY CLAY</b> WITH ROOT FIBERS & ORGANIC MATTER STIFF TO VERY STIFF BROWN & GRAY <b>SILTY CLAY</b> WITH TRACE OF SAND [ NO GROUNDWATER ENCOUNTERED ]	BS-1 @ 1.0 FT BGS PP = 2.0			
TP-13	970 ±	0.0-0.3 0.3-1.0 1.0-2.5	TOPSOIL: MOTTLED BROWN SILTY SAND WITH TRACE OF CLAY, ROOTS & ORGANIC MATTER VERY STIFF BROWN & GRAY SILTY CLAY WITH TRACE OF SAND BROWN SILTY SAND [ NO GROUNDWATER ENCOUNTERED ]	BS-1 @ 0.3 FT BGS PP = 3.25			

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- [4] PP = POCKET PENETROMETER VALUE IN TONS PER SQUARE FOOT
- [5] BGS = BELOW GROUND SURFACE

**EXCAVATED BY:** J & G EXCAVATING, INC.

**DATE:** NOVEMBER 14 & 17, 2003

PROJE	CT NO: 15	-030094-01	NTH CONSULTANTS, LTD.	SHEET 3 OF 8
			LOG OF TEST PITS	
TEST PIT NO.	GROUND SURFACE ELEV.	DEPTH (FT)	SOIL DESCRIPTION	REMARKS
TP-14	970 ±	0.0-1.3 1.3-2.0 2.0-3.0	TOPSOIL: DARK BROWN SILTY SAND WITH ROOTS & ORGANIC MATTER BROWN & GRAY SILTY SAND GRAY SILTY SAND [ NO GROUNDWATER ENCOUNTERED ]	BS-1 @ 0.5 FT BGS
TP-15	970 ±	0.0-2.0 2.0-3.0 3.0-3.5 3.5-11.5 11.5-12.0	TOPSOIL: DARK BROWN & BLACK SILTY SAND WITH ROOTS & ORGANIC MATTER BROWN & GRAY SILTY SAND GRAY SILTY SAND SOFT GRAY SILTY CLAY WITH TRACE OF SAND & ORGANIC MATTER GRAY SILTY SAND [GROUNDWATER ENCOUNTERED AT 2.0 FT BGS]	BS-1 @ 1.5 FT BGS BS-2 @ 3.0 FT BGS BS-3 @ 10.0 FT BGS BS-4 @ 11.5 FT BGS
TP-16	970 ±	0.0-2.5 2.5-3.0 3.0-6.5	TOPSOIL: DARK BROWN & BLACK SILTY SAND WITH ROOTS & ORGANIC MATTER GRAY SILTY SAND SOFT GRAY SILTY CLAY WITH TRACE OF SAND & ORGANIC MATTER [GROUNDWATER ENCOUNTERED AT 2.5 FT BGS]	BS-1 @ 1.0 FT BGS BS-2 @ 4.0 FT BGS; PP < 0.5
TP-17	970 ±	0.0-1.5 1.5-3.0	TOPSOIL: DARK BROWN <b>SILTY SAND</b> WITH ROOTS & ORGANIC MATTER STIFF TO VERY STIFF BROWN & GRAY <b>SILTY CLAY</b> WITH TRACE OF SAND & OCCASIONAL SAND SEAMS [ NO GROUNDWATER ENCOUNTERED ]	PP = 2.0
TP-18	972 ±	0.0-1.0 1.0-4.0	TOPSOIL: DARK BROWN <b>SILTY SAND</b> WITH ROOTS BROWN <b>SILTY SAND</b> [ NO GROUNDWATER ENCOUNTERED ]	
TP-19	950 ±	0.0-1.0 1.0-3.0 3.0-7.0 7.0-11.0	TOPSOIL: DARK BROWN <b>SILTY SAND</b> WITH TRACE OF CLAY & ROOT FIBERS MEDIUM TO STIFF BROWN <b>SILTY CLAY</b> WITH TRACE OF SAND & ROOT FIBERS HARD BROWN & GRAY <b>SILTY CLAY</b> WITH TRACE OF SAND GRAY <b>SILTY SAND</b> [ NO GROUNDWATER ENCOUNTERED ]	BS-1 @ 1.5 FT BGS; PP = 1.0

- [1] TEST PITS BACKFILLED WITH EXCAVATED MATERIAL.
  [2] TEST PIT EXCAVATION INSPECTED BY M. AGBULOS O TEST PIT EXCAVATION INSPECTED BY M. AGBULOS OF NTH CONSULTANTS, LTD.
- [3] SOIL CLASSIFICATION BASED SOLELY ON VISUAL OBSERVATION.
- [4] PP = POCKET PENETROMETER VALUE IN TONS PER SQUARE FOOT
- [5] BGS = BELOW GROUND SURFACE

EXCAVATED BY: J & G EXCAVATING, INC.

**DATE:** NOVEMBER 14 & 17, 2003

PROJE	<b>CT NO</b> : 15	-030094-01	NTH CONSULTANTS, LTD.	SHEET 4 OF 8				
		LOG OF TEST PITS						
TEST PIT NO.	GROUND SURFACE ELEV.	DEPTH (FT)	SOIL DESCRIPTION	REMARKS				
TP-20	952 ±	0.0-1.0 1.0-3.5 3.5-12.0 12.0-13.5	TOPSOIL: DARK BROWN SILTY SAND WITH TRACE OF CLAY, ROOTS & ORGANIC MATTER  STIFF BROWN SILTY CLAY WITH TRACE TO LITTLE SAND & TRACE OF ROOT FIBERS HARD BROWN & GRAY SILTY CLAY WITH TRACE OF SAND & OCCASIONAL SAND SEAMS  VERY STIFF GRAY SILTY CLAY WITH TRACE OF SAND & GRAVEL  [ NO GROUNDWATER ENCOUNTERED ]	PP = 1.0 BS-1 @ 6.0 FT BGS; PP > 4.5 BS-2 @ 12.0 FT BGS BS-3 @ 13.5 FT BGS; PP = 3.25				
TP-21	952 ±	0.0-1.0 1.0-3.5 3.5-10.0 10.0-12.0	TOPSOIL: DARK BROWN <b>SILTY SAND</b> WITH ROOTS & ORGANIC MATTER STIFF BROWN <b>SILTY CLAY</b> WITH TRACE TO LITTLE SAND & TRACE OF ROOT FIBERS HARD BROWN & GRAY <b>SILTY CLAY</b> WITH TRACE TO LITTLE SAND & OCCASIONAL SAND SEAMS VERY STIFF GRAY <b>SILTY CLAY</b> WITH TRACE OF SAND & GRAVEL [NO GROUNDWATER ENCOUNTERED]	BS-1 @ 5.0 FT BGS; PP > 4.5 BS-2 @ 10.0 FT BGS; PP = 3.5				
TP-22	978 ±	0.0-1.0 1.0-2.0 2.0-4.0	TOPSOIL: DARK BROWN <b>SILTY SAND</b> WITH ROOT FIBERS & ORGANIC MATTER BROWN <b>SILTY SAND</b> WITH TRACE OF ROOT FIBERS STIFF BROWN <b>SILTY CLAY</b> WITH LITTLE SAND [NO GROUNDWATER ENCOUNTERED]	BS-1 @ 0.5 FT BGS BS-2 @ 1.5 FT BGS BS-3 @ 3.0 FT BGS				
TP-23	976 ±	0.0-0.7 0.7-1.0 1.0-3.0	TOPSOIL: DARK BROWN <b>SILTY SAND</b> WITH ROOT FIBERS BROWN <b>SILTY SAND</b> WITH TRACE OF GRAVEL BROWN <b>SAND</b> WITH TRACE OF SILT & GRAVEL [ NO GROUNDWATER ENCOUNTERED ]	BS-1 @ 0.5 FT BGS BS-2 @ 2.0 FT BGS				
TP-24	972 ±	0.0-1.5 1.5-2.5 2.5-3.5	TOPSOIL: DARK BROWN <b>SILTY SAND</b> WITH ROOT FIBERS & ORGANIC MATTER STIFF BROWN <b>SILTY CLAY</b> WITH LITTLE SAND BROWN & GRAY <b>SILTY SAND</b> WITH TRACE OF GRAVEL  [ NO GROUNDWATER ENCOUNTERED ]	BS-1 @ 0.5 FT BGS BS-2 @ 2.0 FT BGS				
TP-25	970 ±	0.0-2.0 2.0-5.0 5.0-7.0	TOPSOIL: BLACK <b>ORGANIC CLAY</b> WITH TRACE TO LITTLE SILT & SAND MEDIUM GRAY <b>SILTY CLAY</b> WITH TRACE OF SAND, GRAVEL & ORGANIC MATTER GRAY <b>SANDY SILT</b> WITH TRACE OF CLAY  [GROUNDWATER ENCOUNTERED AT 2.0 FT BGS]	BS-1 @ 1.0 FT BGS BS-2 @ 3.0 FT BGS; PP = 0.5				

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- [3] [4] SOIL CLASSIFICATION BASED SOLELY ON VISUAL OBSERVATION.
- PP = POCKET PENETROMETER VALUE IN TONS PER SQUARE FOOT
- [5] BGS = BELOW GROUND SURFACE

EXCAVATED BY: J & G EXCAVATING, INC.

**DATE:** NOVEMBER 14 & 17, 2003

PROJE	CT NO: 15	-030094-01	NTH CONSULTANTS, LTD.	SHEET 5 OF 8				
•			LOG OF TEST PITS					
TEST PIT NO.	GROUND SURFACE ELEV.	DEPTH (FT)	SOIL DESCRIPTION	REMARKS				
TP-26	970 ±	0.0-1.0 1.0-3.0	TOPSOIL: DARK BROWN SILTY SAND WITH ROOTS & ORGANIC MATTER VERY STIFF BROWN & GRAY SILTY CLAY WITH TRACE OF SAND [NO GROUNDWATER ENCOUNTERED]	BS-1 @ 1.0 FT BGS PP = 3.5				
TP-27	980 ±	0.0-0.8 0.8-6.5 6.5-8.0	TOPSOIL: BROWN SANDY CLAY WITH TRACE OF ROOT FIBERS & ORGANIC MATTER  STIFF TO VERY STIFF BROWN SANDY CLAY WITH TRACE OF SILT & ROOT FIBERS BROWN & GRAY SILTY SAND WITH TRACE OF CLAY & GRAVEL  [NO GROUNDWATER ENCOUNTERED]	BS-1 @ 3.0 FT BGS; PP = 2.0 BS-2 @ 7.0 FT BGS				
TP-28	969 ±	0.0-0.5 0.5-4.0	TOPSOIL: BROWN SILTY SAND WITH ROOTS BROWN SILTY SAND WITH TRACE OF GRAVEL & ROOT FIBERS [GROUNDWATER ENCOUNTERED AT 3.5 FT BGS]	BS-1 @ 3.0 FT BGS				
TP-29	968 ±	0.0-1.0 1.0-3.0	TOPSOIL: BROWN SILTY SAND WITH TRACE OF CLAY & ROOTS BROWN SAND WITH TRACE OF SILT & GRAVEL [NO GROUNDWATER ENCOUNTERED]	BS-1 @ 3.0 FT BGS				
TP-30	968 ±	0.0-1.0 1.0-4.0	TOPSOIL: BLACK SILTY SAND WITH TRACE OF CLAY & ORGANIC MATTER BROWN SILTY SAND WITH TRACE OF GRAVEL [GROUNDWATER ENCOUNTERED AT 1.5 FT BGS]	BS-1 @ 3.5 FT BGS				
TP-31	972 ±	0.0-1.0 1.0-2.0	TOPSOIL: DARK BROWN SILTY CLAY WITH TRACE OF SAND & ROOT FIBERS HARD BROWN & GRAY SILTY CLAY WITH TRACE OF SAND [NO GROUNDWATER ENCOUNTERED]	BS-1 @ 0.5 FT BGS PP = 4.0				
TP-32	971 ±	0.0-0.5 0.5-1.5	TOPSOIL: DARK BROWN <b>SILTY SAND</b> WITH ROOT FIBERS VERY STIFF BROWN & GRAY <b>SILTY CLAY</b> WITH TRACE OF SAND [NO GROUNDWATER ENCOUNTERED]	BS-1 @ 1.0 FT BGS; PP = 2.5				

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- PP = POCKET PENETROMETER VALUE IN TONS PER SQUARE FOOT
- [4] PP = POCKET PENETROMETER VAL [5] BGS = BELOW GROUND SURFACE

**EXCAVATED BY:** J & G EXCAVATING, INC.

**DATE:** NOVEMBER 14 & 17, 2003

PROJE	CT NO: 15	-030094-01	NTH CONSULTANTS, LTD.	SHEET 6 OF 8			
			LOG OF TEST PITS				
TEST PIT NO.	GROUND SURFACE ELEV.	DEPTH (FT)	SOIL DESCRIPTION	REMARKS			
TP-33	976 ±	0.0-0.2 0.2-1.5 1.5-2.0	TOPSOIL: DARK BROWN SILTY CLAY WITH TRACE OF GRAVEL & ROOT FIBERS BROWN SAND WITH TRACE OF SILT & GRAVEL HARD GRAY SILTY CLAY WITH TRACE OF SAND & GRAVEL [NO GROUNDWATER ENCOUNTERED]	BS-1 @ 1.0 FT BGS PP = 4.0			
TP-34	978 ±	0.0-0.8 0.8-2.0 2.0-3.0	TOPSOIL: DARK BROWN <b>SILTY SAND</b> WITH ROOTS & ORGANIC MATTER STIFF TO VERY STIFF BROWN <b>SANDY CLAY</b> WITH TRACE OF SILT & ROOT FIBERS HARD BROWN & GRAY <b>SILTY CLAY</b> WITH TRACE OF SAND [NO GROUNDWATER ENCOUNTERED]	BS-1 @ 1.5 FT BGS; PP = 2.0 BS-2 @ 3.0 FT BGS; PP > 4.5			
TP-35	966 ±	0.0-1.5 1.5-2.5 2.5-4.5	TOPSOIL: BROWN SILTY SAND WITH ROOTS STIFF TO VERY STIFF BROWN SANDY CLAY WITH TRACE OF SILT & ROOT FIBERS HARD BROWN SILTY CLAY WITH TRACE OF SAND [NO GROUNDWATER ENCOUNTERED]	BS-1 @ 1.0 FT BGS BS-2 @ 2.0 FT BGS; PP = 2.0 PP > 4.5			
TP-36	965 ±	0.0-1.0 1.0-2.5 2.5-3.5	TOPSOIL: DARK BROWN <b>SILTY SAND</b> WITH ROOTS STIFF TO VERY STIFF BROWN <b>SANDY CLAY</b> WITH TRACE OF SILT VERY STIFF BROWN & GRAY <b>SILTY CLAY</b> WITH TRACE OF SAND [NO GROUNDWATER ENCOUNTERED]	PP = 2.0 BS-1 @ 3.0 FT BGS; PP = 2.5			
TP-37	968 ±	0.0-1.0 1.0-2.0 2.0-2.5	TOPSOIL: DARK BROWN SILTY CLAY WITH TRACE OF SAND & ROOTS STIFF TO VERY STIFF BROWN SANDY CLAY WITH TRACE OF SILT HARD BROWN SILTY CLAY WITH TRACE OF SAND [ NO GROUNDWATER ENCOUNTERED ]	BS-1 @ 0.5 FT BGS BS-2 @ 1.5 FT BGS; PP = 2.0 PP > 4.5			
TP-38 965 ± 0.0-2.0 2.0-3.5 3.5-6.5 6.5-8.0		2.0-3.5 3.5-6.5	TOPSOIL: BLACK SILTY SAND WITH ROOTS & ORGANIC MATTER DARK BROWN SILTY SAND WITH TRACE OF ROOT FIBERS & ORGANIC MATTER BROWN & GRAY SILTY SAND WITH TRACE OF CLAY STIFF TO VERY STIFF GRAY SILTY CLAY WITH TRACE OF SAND [GROUNDWATER ENCOUNTERED AT 3.0 FT BGS]	BS-1 @ 1.0 FT BGS BS-2 @ 3.5 FT BGS PP = 2.0			

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[3] SOIL CLASSIFICATION BASED SOLELY ON VISUAL OBSERVATION.

[4] PP = POCKET PENETROMETER VALUE IN TONS PER SQUARE FOOT
[5] BGS = BELOW GROUND SURFACE

EXCAVATED BY: J & G EXCAVATING, INC.

**DATE:** NOVEMBER 14 & 17, 2003

PROJE	CT NO: 15	-030094-01	NTH CONSULTANTS, LTD.	SHEET 7 OF 8			
			LOG OF TEST PITS				
TEST PIT NO.	GROUND SURFACE ELEV.	DEPTH (FT)	SOIL DESCRIPTION	REMARKS			
TP-39	967 ±	0.0-1.0 1.0-2.0 2.0-3.0	TOPSOIL: BROWN <b>SILTY SAND</b> WITH ROOTS BROWN <b>SANDY CLAY</b> WITH TRACE OF SILT & GRAVEL VERY STIFF BROWN & GRAY <b>SILTY CLAY</b> WITH TRACE OF SAND & GRAVEL [ NO GROUNDWATER ENCOUNTERED ]	BS-1 @ 0.5 FT BGS PP = 2.75			
TP-40	964 ±	0.0-1.5 1.5-2.0 2.0-5.0 5.0-6.0	TOPSOIL: BLACK SILTY SAND WITH ROOTS & ORGANIC MATTER BROWN SILTY SAND BROWN & GRAY SILTY SAND WITH TRACE OF CLAY MEDIUM GRAY SILTY CLAY WITH TRACE OF SAND, GRAVEL & ORGANIC MATTER [GROUNDWATER ENCOUNTERED AT 2.0 FT BGS]	BS-1 @ 4.0 FT BGS BS-2 @ 6.0 FT BGS; PP = 0.5			
TP-41	964 ±	0.0-2.0 2.0-4.0 4.0-6.0 6.0-6.5	TOPSOIL: BLACK SILTY SAND WITH ROOTS & ORGANIC MATTER MEDIUM TO STIFF BROWN & GRAY SILTY CLAY WITH LITTLE SAND MEDIUM GRAY SILTY CLAY WITH TRACE OF SAND & ORGANIC MATTER GRAY SILTY SAND WITH TRACE OF CLAY [GROUNDWATER ENCOUNTERED AT 2.0 FT BGS]	PP = 0.75 BS-1 @ 5.0 FT BGS; PP = 0.5 BS-2 @ 6.5 FT BGS			
TP-42	967 ±	0.0-1.0 1.0-1.5 1.5-3.0	TOPSOIL: DARK BROWN <b>SILTY SAND</b> WITH ROOTS BROWN <b>SILTY SAND</b> VERY STIFF BROWN & GRAY <b>SILTY CLAY</b> WITH TRACE OF SAND & ROOT FIBERS [ NO GROUNDWATER ENCOUNTERED ]	BS-1 @ 0.5 FT BGS BS-2 @ 2.0 FT BGS; PP = 3.5			
TP-43	971 ±	0.0-1.0 1.0-2.0 2.0-3.0	TOPSOIL: DARK BROWN <b>SILTY SAND</b> WITH ROOTS STIFF TO VERY STIFF BROWN <b>SILTY CLAY</b> WITH TRACE TO LITTLE SAND VERY STIFF BROWN & GRAY <b>SILTY CLAY</b> WITH TRACE OF SAND [ NO GROUNDWATER ENCOUNTERED ]	BS-1 @ 1.5 FT BGS; PP = 1.5 PP = 2.5			
TP-44 972 ± 0.0-1.7 1.7-4.0 4.0-6.0 6.0-7.0 7.0-7.5			TOPSOIL: DARK BROWN & BLACK <b>SILTY SAND</b> WITH TRACE OF CLAY, ROOT FIBERS & ORGANIC MATTER  VERY STIFF BROWN & GRAY <b>SILTY CLAY</b> WITH TRACE OF SAND & GRAVEL BROWN <b>SAND</b> WITH TRACE OF SILT  STIFF TO VERY STIFF GRAY <b>SILTY CLAY</b> WITH TRACE OF SAND & ORGANIC MATTER GRAY <b>SAND</b> WITH TRACE OF SILT & GRAVEL  [ GROUNDWATER ENCOUNTERED AT 4.0 FT BGS ]	BS-1 @ 1.0 FT BGS  BS-2 @ 2.0 FT BGS; PP = 2.0  BS-3 @ 6.5 FT BGS; PP = 2.0			

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  [2] TEST PIT EXCAVATION INSPECTED BY M. ACRUMOS CO. TEST PIT EXCAVATION INSPECTED BY M. AGBULOS OF NTH CONSULTANTS, LTD.
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EXCAVATED BY: J & G EXCAVATING, INC.

**DATE:** NOVEMBER 14 & 17, 2003

PROJE	CT NO: 15	-030094-01	· NTH CONSULTANTS, LTD.	SHEET 8 OF 8
			LOG OF TEST PITS	
TEST PIT NO.	GROUND SURFACE ELEV.	DEPTH (FT)	SOIL DESCRIPTION	REMARKS
TP-45	966±	0.0-1.0 1.0-2.0 2.0-3.0	TOPSOIL: BROWN SILTY SAND WITH TRACE OF CLAY HARD BROWN & GRAY SILTY CLAY WITH TRACE OF SAND & ROOT FIBERS  [ NO GROUNDWATER ENCOUNTERED ]	BS-1 @ 1.5 FT BGS PP = 4.0

- [1] TEST PITS BACKFILLED WITH EXCAVATED MATERIAL.
- [2] TEST PIT EXCAVATION INSPECTED BY M. AGBULOS OF NTH CONSU [3] SOIL CLASSIFICATION BASED SOLELY ON VISUAL OBSERVATION. [4] PP = POCKET PENETROMETER VALUE IN TONS PER SQUARE FOOT TEST PIT EXCAVATION INSPECTED BY M. AGBULOS OF NTH CONSULTANTS, LTD.

- [5] BGS = BELOW GROUND SURFACE

**EXCAVATED BY:** J & G EXCAVATING, INC. **DATE:** NOVEMBER 14 & 17, 2003 FIGURE NO: 1

# PRELIMINARY GEOTECHNICAL EXPLORATION AND ENGINEERING REPORT

FOR THE PROPOSED:

SITE DEVELOPMENT 46700 & 46404 GRAND RIVER AVE. CITY OF NOVI OAKLAND COUNTY, MICHIGAN

PREPARED FOR:

SERVMAN, LLC 46100 GRAND RIVER AVENUE NOVI, MICHIGAN 48374-1317

BY:

PROFESSIONAL SERVICE INDUSTRIES, INC. 45749 HELM STREET PLYMOUTH, MICHIGAN 48170 (734) 453-7900

MAY 23, 2014

PSI PROJECT NO. 0381570A



# PRELIMINARY GEOTECHNICAL EXPLORATION AND ENGINEERING REPORT PROPOSED SITE DEVELOPMENT – 46700 & 46404 GRAND RIVER AVENUE CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

#### **EXECUTIVE SUMMARY**

PSI has completed our preliminary geotechnical exploration and engineering report for the proposed site development to be constructed at 46700 & 46404 Grand River Avenue in the city of Novi, Oakland County, Michigan. PSI understands that additional explorations were performed to identify subsurface soil conditions at the former Anglin Civil Constructors Ltd property located at 46700 Grand River Avenue and property owned by Acme Construction Company at address 46404 Grand River Avenue in the city of Novi, Oakland County, Michigan. PSI understands that the Anglin Civil Constructors site is currently an undeveloped lot approximately 20 acres in size and is being used as a storage yard for Anglin Civil Constructors Ltd.

Based on conversations with Suburban Collection Showplace personal, PSI understands the project site may be used to expand the existing Suburban Collection Showplace and may consist of the construction of a two-story steel-framed building structure with concrete slab-on-grade floor and no basement. Specific details relative to the size and location of the proposed building footprint(s) and the anticipated wall and column loads were not provided. For the purposes of our analysis, PSI assumes that the wall loads supported on the perimeter continuous foundations may be less than 4 kips per lineal foot (klf) and the column loads will not exceed 100 kips. In addition, PSI assumes that the slab-on-grade loading will not exceed about 150 pounds per square foot. A total of twelve (12) soil test borings were performed within the proposed development area and selected samples were tested in the laboratory.

Deleterious old fill consisting predominately of discolored dark brown, brown and black sandy clay, silty clay and sand with variable percentages of asphalt, sand, concrete, brick, wood and organics was encountered at Borings B-1 through B-12. The old fill extended to depths ranging from approximately 4 to 19.5 feet below the existing ground surface at the locations of Borings B-1 through B-12. A stratum of dark brown to black amorphous peat was encountered at the locations of Borings B-10 and B-12 below the old fill layer. The peat stratum extended to depths ranging from approximately 9.5 to 24 feet below the existing ground surface. A stratum of apparently native mottled brown and gray to mottled brown, orangish brown and gray sandy clay with variable percentages of sand was encountered below the fill at the locations of Borings B-1, B-2, B-3, B-8, B-9 and B-11. The mottled sandy clay stratum extended to depths ranging from approximately 12 to 34 feet below the existing ground surface at the location of Borings B-1, B-2, B-8, B-9 and B-11 and through the final explored depths of approximately 15 feet below the ground surface at the locations of Boning B-3. A stratum of apparently native brown and yellowish brown to gray, and dark gray fine to fine to coarse silty sand was encountered below and interbeded within the mottled and gray sandy clay stratum at the locations of Boring B-1, B-2, B-6, B-8, B-9, B-10 and B-12. In



addition, the silty sand encountered below the amorphous peat at the location of Boring B-12 had trace amounts of organics. The silty sand strata extended to depths ranging from approximately 19.5 to 35 feet at the locations of Borings B-2, B-6, B-8, B-9, B-10 and B-12 and through the final explored depth of Boring B-1 of approximately 15 feet below the existing ground surface. A stratum of gray sandy clay with variable percentages of sand was encountered below the mottled sandy clay and silty sand strata at the locations of Borings B-2, B-4, B-5, B-6, B-8, B-9, B-10, B-11 and B-12. The gray sandy clay stratum extended through the final explored depths of the borings of approximately 15 and 40 feet below the ground surface.

As noted above, deleterious old fill consisting predominately of discolored dark brown, brown and black sandy clay, silty clay and sand with variable percentages of asphalt, sand, concrete, brick, wood and organics was encountered at Borings B-1 through B-12. The old fill extended to depths ranging from approximately 4 to 19.5 feet below the existing ground surface at the locations of Borings B-1 through B-12. A stratum of dark brown to black amorphous peat was encountered at the locations of Borings B-10 and B-12 below the old fill layer. The peat stratum extended to depths ranging from approximately 9.5 to 24 feet below the existing ground surface. The Loss-On-Ignition (LOI) or organic contents of the tested sample from boring B-10 was 41.5 percent (which is very high). These variable N-values suggests that the fill was not placed in a controlled manner. It would not be unusual for the thickness, composition and density of the near-surface fill materials to vary from that encountered at the individual boring locations. In PSI's opinion, the existing deleterious old fill and organic soils are not considered suitable for direct support of the proposed structure on a conventional shallow foundation system. In addition poor pavement performance including faulting, cracking and a reduced service life should be anticipated where the proposed site pavements are place directly over the existing old fill materials. If it is desired to support the proposed building on conventional shallow foundations, ground improvement will be required.

In PSI's opinion, one of the most feasible methods of ground improvement at this site (from a relative constructability, engineering and cost standpoint) is to leave the old fill and organic soils in-place and support the proposed building on conventional shallow spread footing foundations following the installation of Rammed-Aggregate Piers (RAP)/Geo-Piers or stone columns.

This site improvement method may likely be performed at a lower cost and within a quicker construction timeline than conventional mass excavation and replacement of the existing old fill materials. RAP/Geo-Piers will also provide uniform support for the proposed structure reducing total and differential settlement and will eliminate the uncertainty associated with supporting the building structure and it's floor slab directly on the old fill and organics soils. The installation of RAP/Geo-Piers or stone columns will also reduce the amount of potentially environmentally sensitive excavated fill and organic soils that has to be removed to an appropriate off-site disposal location if the owner decides to perform mass excavation and removal of the unsuitable soils from below the proposed building



structure footprint.

RAP/Geo-pier elements are typically installed by either drilling a 20 to 30-inch diameter cavity or driving a variable-diameter mandrel into the soil, displacing the soil laterally to form a cavity. The cavity is filled by ramming thin lifts of aggregate within the cavity. During the installation process, high frequency impact ramming energy applied to each lift both densifies the aggregate and surrounding soil and forces the aggregate laterally into the sidewalls of the hole further stiffening the stabilized composite soil mass. PSI estimates that the RAP/Geo-Pier elements would be installed through the fill and into the underlying stiff to hard silty/sandy clay soils through a RAP/Geo-Pier shaft length of approximately 20 to 25 feet. PSI anticipates that the RAP/Geo-Pier elements will be installed along the proposed building's perimeter load-bearing walls, below the isolated interior column locations and on a grid pattern below the proposed floor slab. RAP/Geo-Pier or stone column elements are generally designed and installed by a design-build specialty contractor. PSI would be pleased to work with an installation contractor to better define the feasibility and scope of work for this site and to provide a specific allowable bearing capacity and estimated settlement for use in the foundation design as well as the associated costs.

Based on the borings performed, the site also appears suitable for support of the proposed structure on a drilled pier or caisson foundation. The vertical loads will be supported predominately by end-bearing. PSI estimates that an allowable end bearing capacity of 6 ksf is achievable for use in the design of drilled pier or caisson foundations where socketed a minimum of 5 feet or one pile diameter (whichever is greater) into the stiff to very stiff sandy clay at or below a depth of approximately 30 feet below the existing ground surface. However, an acceptable foundation elevation may vary due to the depth and type of soils encountered at this project site and therefore PSI should be consulted for further recommendations once the location(s) of the proposed structure(s) have been finalized.

In order to act as a deep foundation element, PSI recommends the length of the drilled pier be a minimum of 4 times the shaft diameter. Also, a minimum shaft diameter of 30 inches is recommended to facilitate cleaning and inspection.

PSI estimates that settlement of the native bearing soils due to load transferred to the tip of properly installed drilled pier or caisson should be on the order of ½ inch or less for the anticipated pile diameter, bearing pressure and length outlined above. Additional movement will occur within the drilled pier due to elastic deformation of the caisson concrete. The elastic deformation is dependent on the strength or Modulus of Elasticity of the concrete (E), the length of the pier (L), the cross sectional area of the pile (A) and the applied compression load at the top of the pile (P) and is expressed by the formula S = PL/AE.

Based on the borings performed, uncontrolled old fill materials are also anticipated to be present below the proposed pavements. Uncontrolled fills, especially those containing organics and deleterious materials, may experience poor pavement performance including



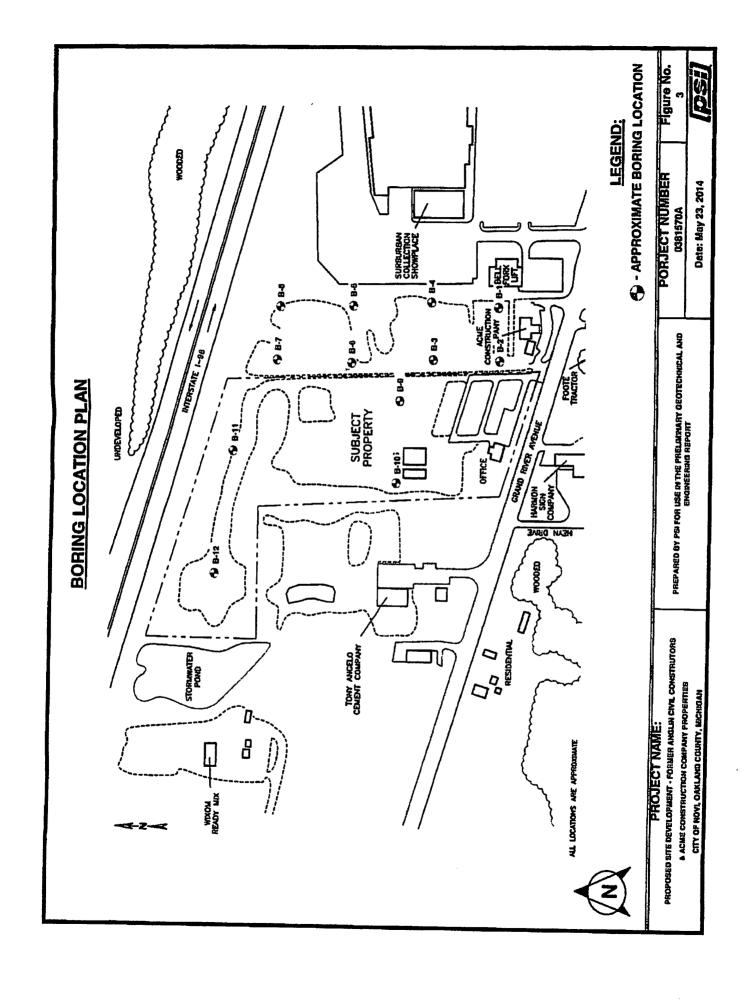
faulting, cracking and a reduced service life where the proposed site pavements are place directly over the existing old fill materials. Therefore, mass excavation and removal of the existing old fill in its entirety from below the pavement may not be a viable option. However, if the owner is willing to accept the risk in doing so, a portion of the existing old fill may remain in-place below the proposed site pavements. The risk of poor pavement performance can be reduced (but not completely eliminated) by partial depth undercutting of the critical upper 2 to 3 foot section of the subgrade and replacement of the existing old fill and organic-containing native soils with clean imported engineered fill. Risk remains of poor pavement performance due to the inherent uncertainty associated with supporting the pavements over existing old fill or discolored, organic-containing native soils, which the Owner must recognize and accept if some or the entire fill thickness is left in place.

To reduce the risk of poor pavement performance to an acceptable level of anticipated performance, PSI recommends that the pavement section be supplemented with TENSAR TX 160 Geogrid or equivalent to improve the performance and serviceable life of the pavement (for both flexible and rigid pavements). Placement of Geogrid at the subgrade/aggregate base course interface will improve the strength of the subgrade soils resulting in an increase in the trafficking capacity or the number of 18-kip ESAL's that the pavement sections can support over the life of the pavement. Placement of a layer of Geogrid directly over the existing old fill in the bottom of the undercut will further help stabilize localized areas of subgrade instability and enhance pavement performance, however, may not eliminate it to its entirety.

The recommendations submitted in this report are considered to be preliminary and are based on the available subsurface information obtained by PSI and the project information furnished by Servman, LLC. Prior to final design and construction, additional borings may be required to verify the soil conditions and to determine if changes in the earthwork, subgrade preparation and preliminary foundation design parameter recommendations presented herein are required. If additional soil borings, laboratory testing and engineering analysis are not performed, PSI will not be responsible for the implementation of its preliminary recommendations.

This Executive Summary should not be considered separately from the entire text of this preliminary report with all the conclusions and qualifications mentioned herein. Details of our preliminary analysis and recommendations are given in the following sections of this preliminary report.





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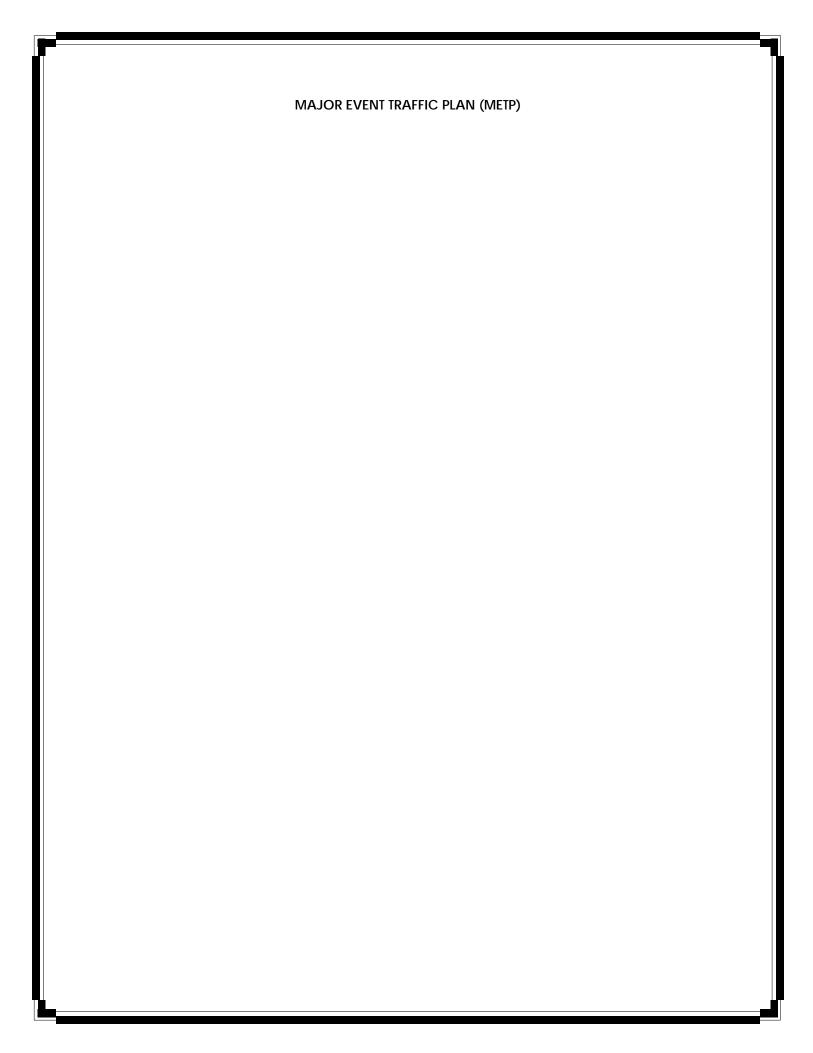
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June 22, 2016

Mr. Blair Bowman Suburban Showplace Collection 46100 Grand River Novi, MI 48374 VIA EMAIL

RE:

Proposed Expansion Suburban Collection Showplace

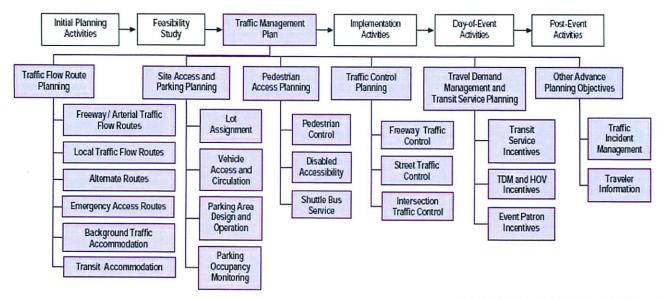
City of Novi, Michigan

Dear Mr. Bowman:

The professional staff of Fleis & VandenBrink (F&V) have reviewed the proposed development plans for the Suburban Collection Showplace and the traffic volume data collected during the Detroit Comic Con Event in May 2016. Based on this information, we offer the following comments and observations for consideration.

The proposed development includes the expansion of the existing site to provide more indoor and outdoor exhibit space. This expansion is not expected to draw additional visitors to the site, but will provide more opportunity and space for additional and larger exhibits. A Traffic Impact Study (TIS) for the proposed site would essentially evaluate the existing conditions, therefore a TIS is not recommended. A TIS is not the appropriate measure to mitigate the site traffic for the proposed site expansion, however a formal Traffic Management Plan (TMP) should be provided for the Suburban Showplace Collection.

A TMP is developed through a formal stakeholder review process that includes evaluating traffic, parking, and pedestrian operations both on- and off- site, and developing management techniques to mitigate event operational problems. The Federal Highway Administration (FHWA) has developed the following outline to assist in the development of a TMP for event management:



The Suburban Collection Showplace has started the development of TMP and F&V recommends that this information is used as a platform to establish a formal TMP for the site. The process should begin with the establishment of a Stakeholder Committee. The Committee should include representation from the following:

- Traffic Operations Agencies: MDOT, RCOC, SEMTOC, City of Novi
- · Law Enforcement Agencies: MSP, City of Novi PD, Oakland County Sherriff
- Event Organizer: Suburban Showplace Collection

These groups represent the core stakeholders who will be responsible for the development and implementation of the TMP.

If you have any questions, please do not hesitate to contact us at your convenience.

Sincerely,

FLEIS & VANDENBRINK

Michael J. Labadie, PE

Group Manager

JMK/mjl





# Expansion Suburban Collection Showplace / Michigan State Fairgrounds

## MAJOR EVENT TRAFFIC PLAN (METP)



Notify - Communicate - Plan - Implement - Review Improve!

Prepared for the City of Novi Site Plan Submittal Process June 21, 2016

# Outline of Major Event Traffic Plan Program--Suburban Collection Showplace/Michigan State Fairgrounds

#### **Introduction and Opening Summary:**

A historical summary of the Novi Expo operations and the newly constructed Showplace operations and related traffic issues and improvements should be provided. Of particular importance, is the historical issues relating to the poor ingress and egress at the former Novi Expo site with one point of access and very limited parking creating regular traffic backups and congestion issues up until the relocation in 2005. With the construction of the new facility an extraordinary amount of traffic planning and future road improvement programming, was engaged in and ultimately completed. These include but are not limited to having three distinct entrance and exit points, to the new Showplace grounds with the main entrance being fully signalized and an additional service exit/entrance from Taft Road. The original development included the installation of a turning lane along the north side of Grand River from the main entrance at the east all the way to the west entrance. In addition, the Showplace project and the economic development it promised, was used as a catalyst for over five million dollars of additional road funding dedicated for the improvement of Grand River to a full five-lane section with a dedicated left hand turn lane. This funding along with the interchange improvements at Beck, Wixom and I-96 as well as the intersection improvements at Grand River and Novi Road and the reconstruction of the "humpback" railroad bridge over the CSX railway completed a three+ mile section of improvement to the Grand River corridor with the Showplace located directly in the middle. Since its original development and opening in 2005, and its subsequent expansion along with the addition of the Hyatt Place Hotel in 2013 the Showplace has continued to attract literally hundreds of events annually and operates with little or only modest traffic impacts with the vast majority of the time. In the last eleven years, and only in recent years, one major event (the Motor City Comic-Con), has provided traffic movement challenges. These challenges have arisen not only due to the large number of overall attendees and increase in popularity of the event, as importantly the short-duration of time in which the peak amount of attendance occurs and average length of stay of the attendees. In 2016, a major coordination effort was undertaken between Michigan Department of Transportation, Michigan State Police, Oakland Road County Commission, Novi Police, City of Novi Administration and Showplace event producer/staff to address and minimize traffic congestion issues. At the core of this planning effort is the basis that the Showplace operations and infrastructure can adequately handle the vast majority of current and future proposed events with little to no planning efforts. However, it is understood that in certain instances like Comic-Con and any other future events that would near a comic-con like threshold that is incumbent upon the Showplace administration to notify and engage in a Major Event Traffic Plan (METP) Program.

In conclusion, it is important to note that at this time, within the current schedule and future booking schedule no events other than the Motor City Comic-Con and to a lesser extent, the Fifth Third Bank Michigan State Fair, are expected to require the invocation of the METP! The events currently slated for the expansion space would provide for the growth of existing events with the most critical growth needs being that of trade and industry style events which have large floor space requirements but very small amounts of attendance as compared to major consumer style events.

### **METP Structure:**

#### **Normal Showplace Operations:**

Use of Current Entrances and Exits Only:

As indicated in the opening summary, the significant amount of parking and infrastructure enjoyed by the Showplace is adequate to handle and provide for the vast majority of events that will be schedule now and into the future. During these times of normal operations the Showplace will function utilizing its current entrances and exits only. Going forward, the entrances utilized during normal operation shall be "Gate 1," which is the main east signalized entrance, and "Gate 2" which is the current west entrance serving as the common drive for Belfor truck and the Showplace. In addition, the center curb-cut into the south lots will be used as an exit-only and the Taft Road service drive will continue to be used in that capacity as well. Even in the case of major consumer events currently scheduled such as Outdoorama, the Women's Show, the Golf Show, Snowmobile Show, etc., these entrances will be sufficient and continue to service the inflow and outflow in an organized fashion for these events.

#### New Expanded Surfaced Parking Areas:

A key part of the new expansion plan is to increase substantially overall surfaced parking even considering the elimination of \_\_\_\_\_ spaces relating to the expansion of the facility itself. Access to the newly expanded parking areas immediately west of the Showplace site will be via predominately the west entrance, Gate 2. The versatility and flexibility needed from the surfaced areas necessitate certain variances from traditional parking lot standards and we will be working with the City to develop the most useful and user-friendly combination throughout the finalization of the site-planning process.

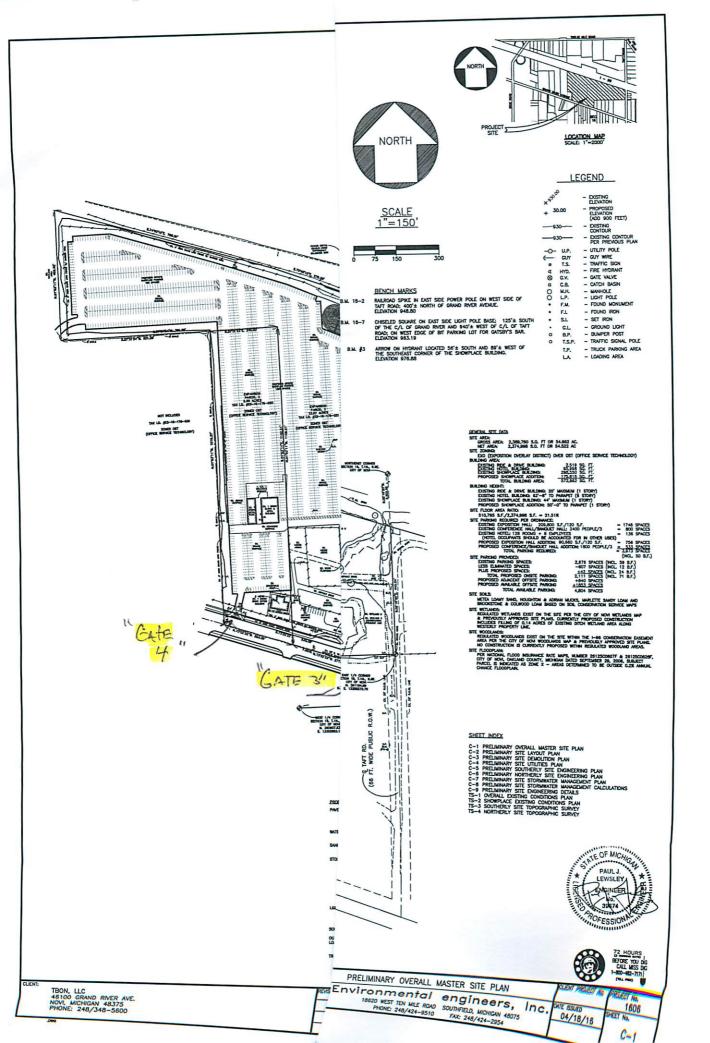
#### **Implementation of the METP:**

If any future potential event is expected to have certain thresholds of overall attendance, however, more importantly, peak amounts of vehicle trips, the Showplace administration shall notify the city administration and initiate the METP procedures. To assist in establishing this threshold and trigger mechanism, we have included the trip generation information and car counts from the peak Saturday time frames from the 2016 Motor City Comic-Con. We have also included some of the correspondence/communications between the various agencies relating to the planning effort, the implementation, and the ultimate results of the 2016 effort. We are proposing that a peak period demand of 80% of the traffic experienced during Comic-Con would trigger the need and use of the METP.

#### **Summary of Key Elements of the METP:**

- 1. Determination that threshold is likely to be met.
- 2. Showplace notifies the City of the future event.
- Notification goes out to all coordinating agencies and organizations, including but not limited to the, Michigan Department of Transportation, Michigan State Police, Oakland County Road Commission, Novi Police/Public Safety, City of Novi Administration, Suburban Collection Showplace staff and event producers.

- 4. Depending on the level and duration of the expected traffic volumes, the plan will include opening of such other gates/entrances to the west, including "Gate 3" and "Gate 4" identified in the attached overall site plan.
- 5. If determined to be either necessary or beneficial, additional ancillary overflow lots in and around the Showplace/fairgrounds may be utilized. These overflow lots will be natural/grass surfaced lots and when appropriate will be operated by charitable and community organizations with a portion or all of the proceeds (if any charge is made for the use of the parking lots) going to these charity/community organizations.
- 6. If determined to be either necessary or beneficial and subject to availability, shuttle lots may be utilized including but not limited to coordination with the Novi Public Schools for use of any available school parking lot area.
- 7. Coordination and optimization of all signal timing within the reasonable geographic area through communication with Oakland County Road Commission Signalization Department.
- 8. If determined to be either necessary and or beneficial, coordination of active physical traffic control by appropriate department personnel. Examples may include ramps on I-96, overpasses and intersections, and potentially entrances/exits at the Showplace itself.
- 9. Coordination of appropriate, allowable messages delivered through the DMS Message System (MDOT highway, large reader board).
- 10. A pre-implementation meeting will be held prior to any event requiring the METP and a postevent meeting/follow up will be held to identify any points of concern or adjustments that may be required.
- 11. A final core element to this approach is that it is clearly understood in the event of experience related to a particular event or continuing regular reoccurring issues being associated with future, major events additional improvements to the plan and/or infrastructure may be required. An example of which would be the installation of additional turning lanes at or near the westerly gates. Another potential would be with a significant amount of new major events requiring department personnel, a Cost/Services Plan may need to be developed.



#### **Executive Assistant**

From: Barr, Mary Ann (MDOT) < BarrM4@michigan.gov>

**Sent:** Thursday, May 12, 2016 11:15 AM

To: Aaron Staup (astaup@cityofnovi.org); Amanda Kulikowski (akulikowski@cityofnovi.org);

Blair Bowman; Bob Bowman; Brian Morley (Brian.Morley@glengineering.com); Brian Woloski (bwoloski@cityofnovi.org); Carissa Markel (cmarkel@rcoc.org); Carl Berry (cberry@dada.org); Cross, Diane (MDOT); DeFauw, Courtney (MDOT); Dipietro, Paul (MSP); Galindo, Steve (MDOT); Gill, Sarah (MDOT); Hancock, Daniel (MSP); Harold Kuhn (hkuhn@dada.org); Ison, Walter (MDOT); Jeff St. Pierre (jeffstpierre@comcast.net);

Jessica Fiore-Lucas (fiore.lucas@yahoo.com); Keith Wuotinen

(kwuotinen@cityofnovi.org); Kerley, Sean (MDOT); Laura Rochow; Mark Koskinen

(mark.koskinen@aecom.com); Mary Ann Barr; Michael Goldman

(michaelg@motorcitycomics.com); Mike Lucas (mlucas95@yahoo.com); Mueller, Eric (MDOT); Parker, Jonathan (MDOT); Parwaiz Nur; Rachel Jones (rjones@rcoc.org); Randall

S. Coleman (rcoleman@dada.org); Shelby Collins; Swan, Barbara (MDOT); Zabel,

Marjorie (MDOT)

**Subject:** Motor City Comic Con Roundup 2016 \*Resending\*

**Attachments:** 2016 Motor City Comic Con Showplace Parking .pdf; 2016 Motor City Comic Con

Contact Sheet.pdf; 2016 Motor City Comic Con Meeting Sign In 4.21.16.pdf

Follow Up Flag: Flag Status: Follow up Completed

Good Afternoon,

Comic Con is here and every year of the Comic Con brings us new challenges. You'll recall in 2015 we had our focus on event parking.

We gotta hand it to the Showplace as they have stepped up and added additional lots and options for parking that will be a huge benefit! Attached to this email is the 2016 Motor City Comic Con Showplace Parking for reference. If you have any questions about parking for the event please use the attached 2016 Motor City Comic Con Contact Sheet to locate the proper contacts. Additionally we have attached contact resources in the 2016 Motor City Comic Con Meeting Sign In 4.21.16 from our meeting in April.

The Revive275 project will no doubt affect ingress and egress traffic on I-96, I-696 and I-275. If you have any questions or concerns about the project's effect on Comic Con Traffic please call the 24/7 Hot Line (248) 275-9248. This line is answered live by Brian Morley. Brian has the authority to take your questions and concerns directly to the project team for resolution. He is a great resource for all things Revive275. <a href="http://www.revive275.com/">http://www.revive275.com/</a> or <a href="http://mdotnetpublic.state.mi.us/drive/Default.aspx">http://www.revive275.com/</a> or

Due the closure of southbound I-275 from I-696 to M-14, the I-96/Beck Rd Interchange has become a very popular detour (turnaround) location. Because of this SEMTOC will be messaging for event traffic to use Wixom Rd. We hope that this will help to disburse the traffic off on I-96. With all the new parking options we do not believe that messaging for "full" lots will be necessary for this event.

We have scheduled an additional Freeway Courtesy Patrol van for patrol on Saturday from 10am-4pm. The van will run a loop on I-96 between Kensington Rd and M-5. As well as I-696 from M-5 to Telegraph. This will allow for assistance to get stranded motorists off the road quickly. If needed the FCP van can assist with short-term traffic control as the van is equipped with an arrow board. Contact information for the FCP is on the 2016 Motor City Comic Con Contact Sheet.

We are committed to doing all we can to make this year's event a success. Please let us know if we can be of additional assistance!

Thank you,

**Mary Ann Barr** 

MDOT-SEMTOC Mobility Coordinator

Mobile: 248-996-5515 Barrm4@michigan.gov

## 2016 NEW AND IMPROVED

PARKING OPTIONS AND PRICING



WEST LOTS: \$7 - LOCATED DIRECTLY WEST OF THE SUBURBAN COLLECTION SHOWPLACE DIRECT ACCESS ONTO GRAND RIVER, THE PARKING SPACES WILL BE OF A GRAVEL SURFACE NATURE

GRASS SURFACE PARKING OPTIONS: \$5 - THERE WILL BE SEVERAL GRASS PARKING LOT OPTIONS AVAILABLE ACROSS FROM THE SHOWPLACE AND EAST OF THE SHOWPLACE ALONG GRAND RIVER.

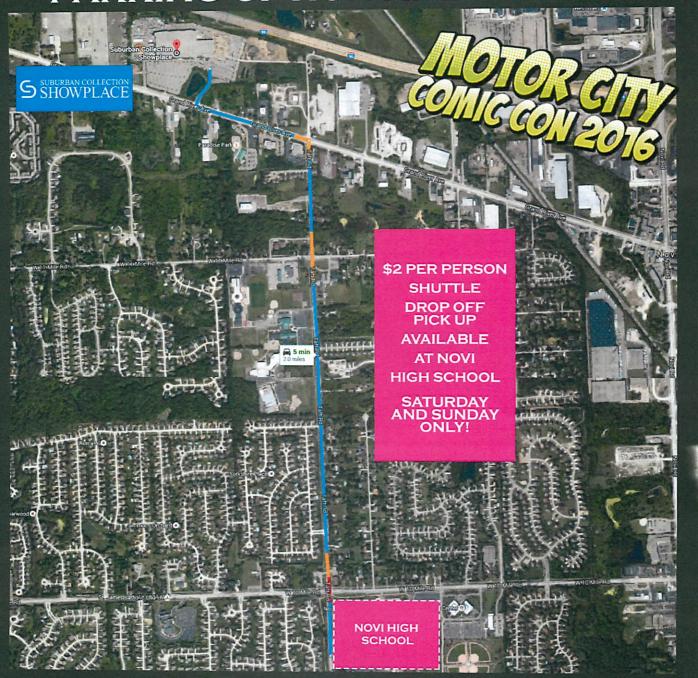
ALL OF THESE LOTS ARE CASH ONLY AND AVAILABLE ON A FIRST-COME FIRST-SERVE BASIS AND ON AN AS IS BASIS ON SATURDAY & SUNDAY ONLY, SUBJECT TO AVAILABILITY.

THE SUBURBAN COLLECTION SHOWPLACE IS NOT RESPONSIBLE FOR ANY LOSS, DAMAGE OR OTHER LIABILITY ARISING OUT OF THE USE AND PARKING WITHIN THESE LOTS. SOME OF THE GRASS SURFACE PARKING AREAS MAY BE RUN BY UNRELATED THIRD-PARTY'S AND SUBURBAN COLLECTION SHOWPLACE IS NOT RESPONSIBLE FOR THE OPERATIONS OF THESE LOTS

IN ANY FORM OR MANNER.

\*\*\*GRASS LOTS MAY NOT BE THESE EXACT LOCATIONS, THIS MAP IS JUST AN EXAMPLE. PLEASE LOOK FOR SIGNAGE FOR THESE LOTS AS YOU ARRIVE AT THE EVENT.\*\*\*

# 2016 OFF-SITE SHUTTLE PARKING OPTION AND PRICING



TWO DOLLAR PER RIDER ROUND-TRIP SHUTTLE OPTION RUNNING ON SATURDAY AND SUNDAY ONLY FROM THE NOVI HIGH SCHOOL PARKING LOTS.

\$1 DOLLAR EACH WAY SHUTTLE RIDE FROM THE NOVI HIGH SCHOOL.
A PORTION OF THE PROCEEDS WILL BE USED TO SUPPORT A LOCAL NOVI EDUCATIONAL CAUSE.

THIS SHUTTLE RUNS ONLY SATURDAY AND SUNDAY AND WILL START ONE HOUR BEFORE THE SHOW OPENING AND RUN UNTIL ONE HOUR AFTER THE SHOW CLOSES.



### Show times:

Friday from 12:30P – 7:00P Saturday from 10:30A – 7:00P Sunday from 10:30A – 5:00P



46100 Grand River Ave, Novi, MI 48374

## **Contact Sheet**

	Suburban Collection Showplace								
1 <sup>st</sup>	Blair Bowman Jr	248-760-4112							
2 <sup>nd</sup>	Jeff St. Pierre	248-931-4758							
3 <sup>rd</sup>	Brian Starrs	248-202-7300							
4 <sup>th</sup>	Bob Bowman	248-974-9550							
5 <sup>th</sup>	Blair Bowman Sr	248-807-8040							

	Novi Police Department										
1 <sup>st</sup>	Sgt Brian Woloski	248-921-9828									
2 <sup>nd</sup>	Sgt Amanda Kulikowski	248-727-3835									
3 <sup>rd</sup>	Lt Keith Wuotinen	248-444-2847									
4 <sup>th</sup>	Dispatch direct (non-public)	248-348-0911									

	FCP-Freeway Courtesy Pat	trol
1 <sup>st</sup>	SEMTOC (FCP Dispatch)	313-965-0777
2 <sup>nd</sup>	Joe Ball (FCP Driver)	313-229-1696
3 <sup>rd</sup>	Mike Lucas (FCP Supervisor)	586-864-8856

	MDOT-Michigan Department of Transportation										
SE	SEMTOC-Southeast Michigan Transportation Operations Center										
1 <sup>st</sup>	Mary Ann Barr	248-996-5515									
2 <sup>nd</sup>	Marji Zabel	248-228-0417									
3 <sup>rd</sup>	Sarah Gill	248-867-6841									



## Motor City Comic Convention Meeting Sign In Thursday 4-21-2016 12pm-1pm

Name	Agency	Phone	E-mail
Shelly Collins	Suburban Collection Showplace	248-348-5600 ext. 246	Scollins @ Suburban showplace. com
AARON STAUP	CiryoFNOVI	248 347 · 3270	astaup@cityofners.org
Blair Buman	5. C. S.	248-760-4112	blair Esuborbanshauplace wom
Paul Di Pietro	msp	313 477 3199	dipietrop @ michigan.gov
Kerth Wuchnen	von PD	248 347-0553	Kwushnen@alyofnour.ors
DAN HANCOCK	/N50	313-237.74FG	HANCUCK D C MICHIGATEN
MANK KOSKINEN	AECOM	248-794-3905	MARK, KOSKINEN@ AECOM. COM
Bob BOWMAN	Subvesary allector Range	248-974-9550	poblama Osifinson Startiez, can
Laura Rochow	Suburban Coll Shouplage	248-207-8043	Lrochow & Suburbanshowplace. Com
Jeff St. Pierre	Suburban Coll Shouplese	248 - 931-4758	Jettstpierre econcast, ne
Carissa Markel	RCOC	586-212-8877 248-858-4739	cmarkel@ 8606.009



## Motor City Comic Convention Meeting Sign In Thursday 4-21-2016 12pm-1pm

Name	Agency	Phone	E-mail
RACHEL JONES	RCOC	248-858-7250	rjones@rcoc-arg
Marin Zabel	MRCT	248-228-6417	Zabelnia Nichigan gou
Covarry Detaco	MDOTOciklard	248-457-2424	defavoro michigangov
MICHAEL GOLDMAN	MOTCA CITY COMICCON		
FANOQUE S Weman	NAIAS	3139996524	RCOLEMAN@DADA. OR9
HAROLD KUAN	NAIAS		HKUHN@DAOA.ORS
AMANDA KULIKOWSKI	Nevi po	248 727 3835	a Kuli Kowski @ cityofrevi. or
Brian Woloski	Nai P.b.	Z48-921-9826	budloski ecity of rain org

## **Executive Assistant**

**Subject:** 

2016 Motor City Comic Con After-Action

Location:

Suburban Collection Showplace, 46100 Gradn River Ave, Novi MI 48374

Start: End:

Tue 5/24/2016 1:00 PM Tue 5/24/2016 2:00 PM

**Show Time As:** 

**Tentative** 

**Recurrence:** 

(none)

Organizer:

Barr, Mary Ann (MDOT)

Here are the agenda and documents for todays after action meeting.

Please join us at 1:00 PM on Tuesday May 24, 2016 at the Suburban Collection Showplace to discuss how traffic and parking resulted during this year's Motor City Comic Con.

An agenda in the works, so let us know if you have any particular topic that needs to be discussed and it will be included. A display board will also be available if you have information on a jump drive that you would like to display.

Thank you,

**Mary Ann Barr** 

**MDOT-SEMTOC Mobility Coordinator** 

Mobile: 248-996-5515 Barrm4@michigan.gov







Motor City Comic After Action

Con After Act... Comic Con Tim...

**RITIS Comic Con** 2016.pptx



## Motor City Comic Convention After Action Agenda Tuesday 5/24/16 1:00 PM

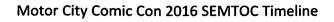
Suburban Collection Showplace, 46100 Grand River Ave, Novi, MI 48374

- Introductions
- Ingress Freeway traffic
- Arterial traffic
- Traffic Signal Timing
- Egress Traffic
- Overview
  - O What worked well?
  - O Where can we improve?













<u>Date</u>	<u>Time</u>	<u>Source</u>	<u>Decription</u>
Friday, May 13, 2016	11:30 AM	SEMTOC	DMS Message Response Plan Activated
Friday, May 13, 2016	12:30 PM	Suburban Collection Showplace	Comic Con Open
Friday, May 13, 2016	2:00 PM	SEMTOC	Video WB I-96 from I-696 to Novi Rd, no delays
Friday, May 13, 2016	4:00 PM	SEMTOC	Minor Incident, NB M5 to WB I96
Friday, May 13, 2016	4:30 PM	SEMTOC	Video EB I-96 at Novi Rd, crash, no delays
Friday, May 13, 2016	5:00 PM	SEMTOC	High Impact Incident, EB I-96 at Novi Rd, only right lane open
Friday, May 13, 2016	6:00 PM	SEMTOC	DMS Message Response Plan Terminated
Friday, May 13, 2016	6:30 PM	SEMTOC	Video WB I-94 at M-39, Waldo found
Friday, May 13, 2016	7:00 PM	Suburban Collection Showplace	Comic Con Closed
Saturday, May 14, 2016	9:00 AM	Novi PD via the I-275 Hot Line	Request to check signal timing at Grand River and Beck Rd
Saturday, May 14, 2016	9:30 AM	SEMTOC	DMS Message Response Plan Activated
Saturday, May 14, 2016	10:00 AM	FCP	Mechanical Assist, WB I-696 at Grand River
Saturday, May 14, 2016	10:30 AM	Suburban Collection Showplace	Comic Con Open
Saturday, May 14, 2016	10:30 AM	FCP	Tire Change, EB M-5 at Drake
Saturday, May 14, 2016	11:00 AM	FCP	Abandoned vehicle marked, EB M-5 at Farminton Rd
Saturday, May 14, 2016	11:00 AM	FCP	Has spotted MSP assisting with ramp traffic control on I-96
Saturday, May 14, 2016	11:30 AM	FCP	Abandoned vehicle marked, WB M-5 at Farminton Rd
Saturday, May 14, 2016	12:30 PM	SEMTOC to RCOC	Request to check signal timing at Novi Rd and I-96 & Crescent
Saturday, May 14, 2016	1:00 PM	SEMTOC	Video SB Novi Rd at I-96, Crescent, Grand River
Saturday, May 14, 2016	1:00 PM	FCP	Multiple Assists, EB I-696 at Orchard Lake
Saturday, May 14, 2016	3:00 PM	SEMTOC	Video WB I-696 at WB I-96, crash, no delays
Saturday, May 14, 2016	3:00 PM	SEMTOC	Image WB I-96 exit Novi Rd, light volume, no delays



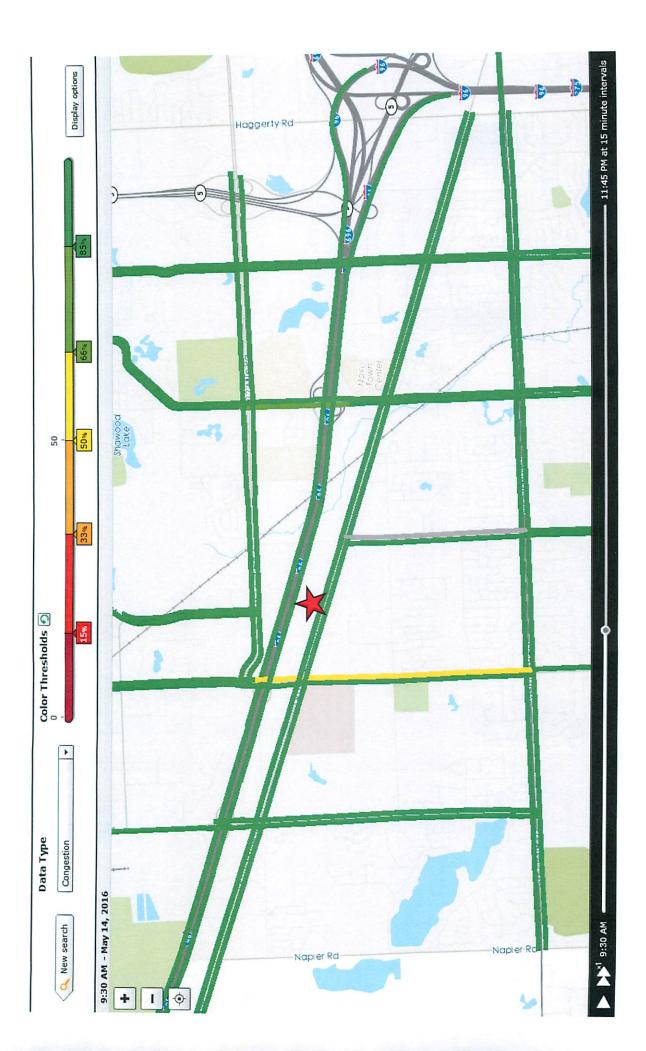


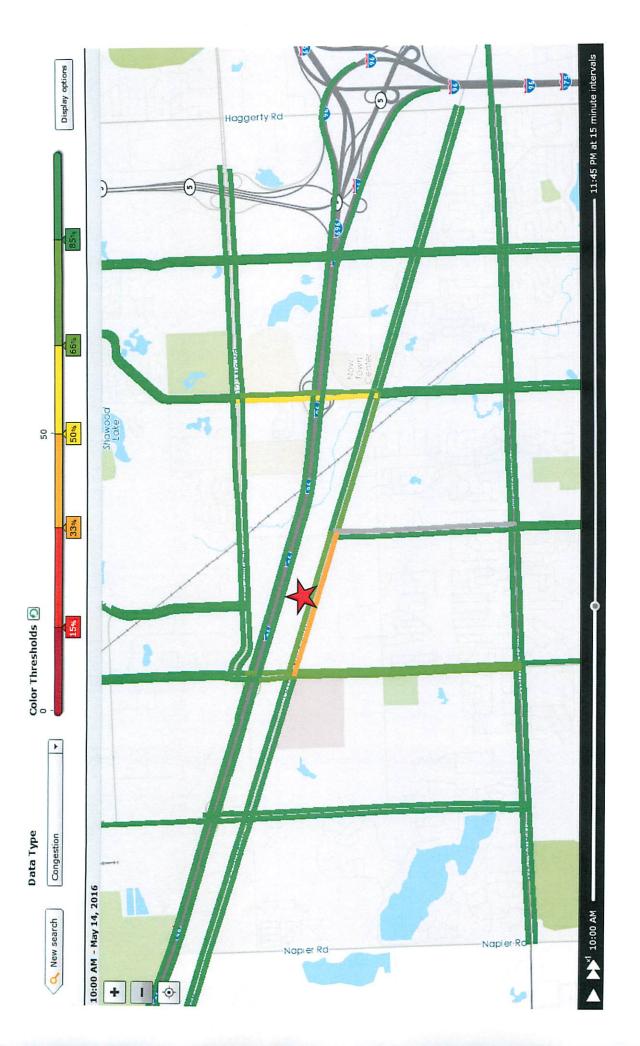


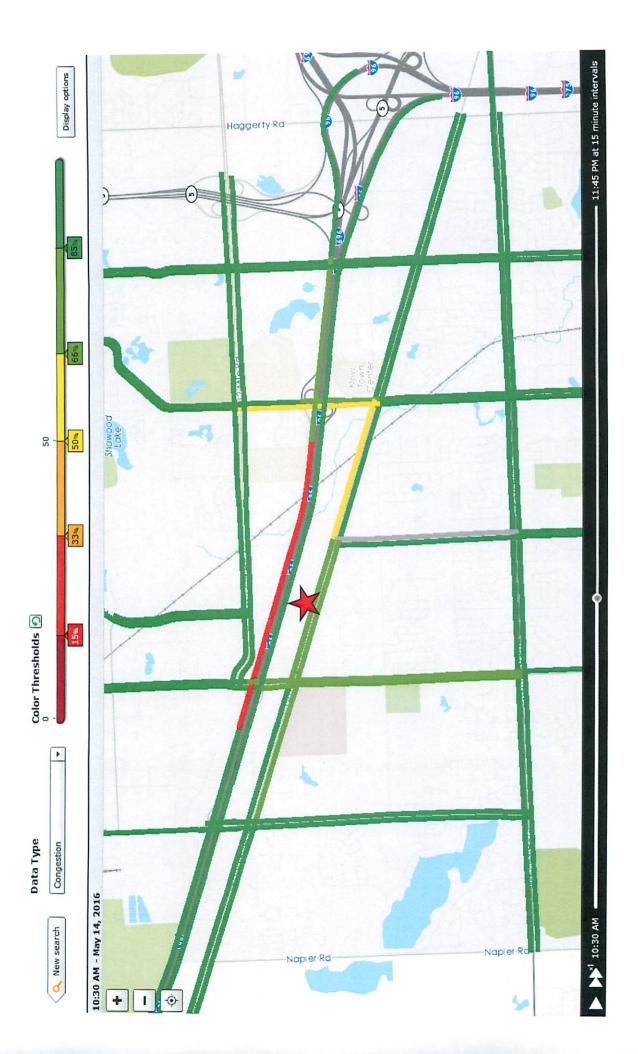
<u>Date</u>	<u>Time</u>	<u>Source</u>	<u>Decription</u>
Saturday, May 14, 2016	3:00 PM	SEMTOC	Image WB I-96 at Beck Rd, moderate volume, no delays
Saturday, May 14, 2016	3:00 PM	SEMTOC	Image EB I-96 exit Wixom, light volume, no delays
Saturday, May 14, 2016	3:00 PM	SEMTOC	Image WB I-96 exit Wixom, light volume, no delays
Saturday, May 14, 2016	3:00 PM	FCP	Mechanical Assist, WB I-696 at Farmington Rd
Saturday, May 14, 2016	3:00 PM	FCP	Mechanical Assist, WB I-696 at Farmington Rd
Saturday, May 14, 2016	3:30 PM	FCP	Mechanical Assist, EB I-696 at Orchard Lake
Saturday, May 14, 2016	4:00 PM	SEMTOC	Image WB I-96 exit Wixom, rain, no delays
Saturday, May 14, 2016	4:00 PM	SEMTOC	Imagex2 EB I-96 from Novi Rd to I-696/M-5, moderate volume, slow
Saturday, May 14, 2016	4:00 PM	SEMTOC	Image Novi Rd south of I-96, heavy volume
Saturday, May 14, 2016	4:00 PM	SEMTOC	Image Novi Rd north of I-96, heavy volume
Saturday, May 14, 2016	4:00 PM	SEMTOC	Image EB I-96 exit to Novi Rd, light volume, no delays
Saturday, May 14, 2016	4:00 PM	SEMTOC	Image WB I-96 exit to Beck Rd, light volume, no delays
Saturday, May 14, 2016	4:00 PM	SEMTOC	Image I-96 at Beck Rd, moderate volume, no delays
Saturday, May 14, 2016	4:00 PM	SEMTOC	Rain detected on the I-96 cameras in Oakland County
Saturday, May 14, 2016	6:00 PM	SEMTOC	DMS Message Response Plan Terminated
Saturday, May 14, 2016	7:00 PM	Suburban Collection Showplace	Comic Con Closed
Sunday, May 15, 2016	9:30 AM	SEMTOC	DMS Message Response Plan Activated
Sunday, May 15, 2016	10:30 AM	Suburban Collection Showplace	Comic Con Open
Sunday, May 15, 2016	1:00 PM	SEMTOC	Operator reports no traffic back-up issues detected on camera related to Comic Con
Sunday, May 15, 2016	4:00 PM	SEMTOC	DMS Message Response Plan Terminated
Sunday, May 15, 2016	5:00 PM	Suburban Collection Showplace	Comic Con Closed

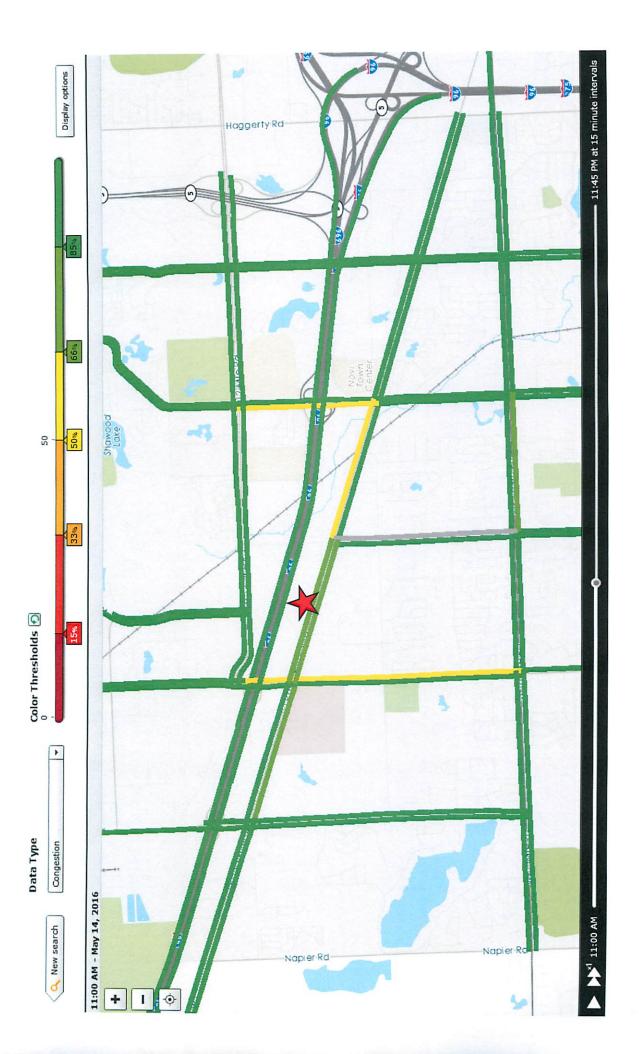
5/24/2016 11:59 AM 2 of 2

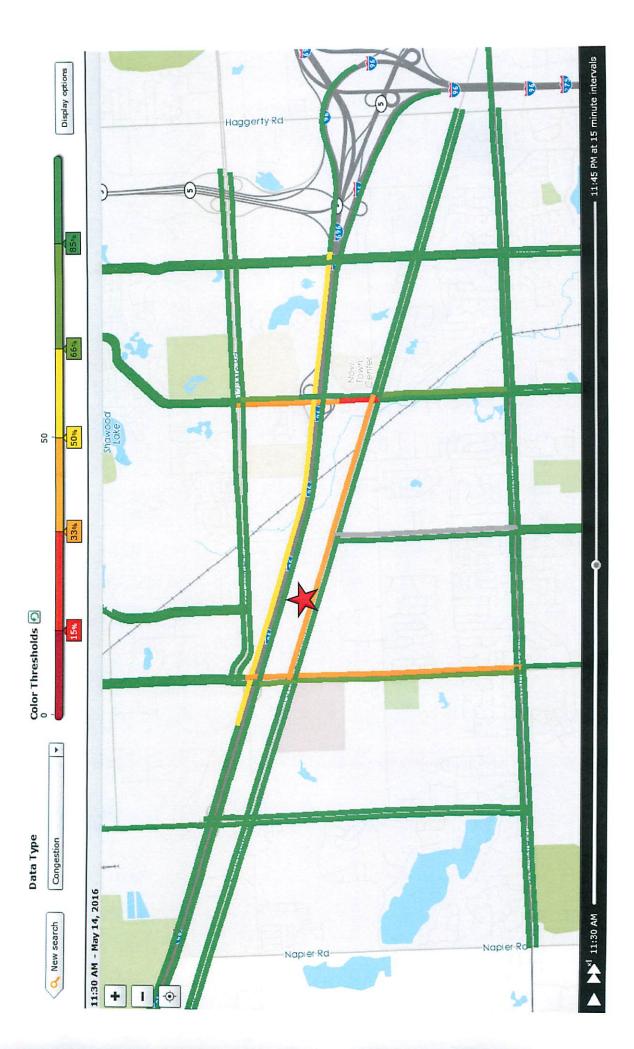
# Saturday 5/14/16 Congestion





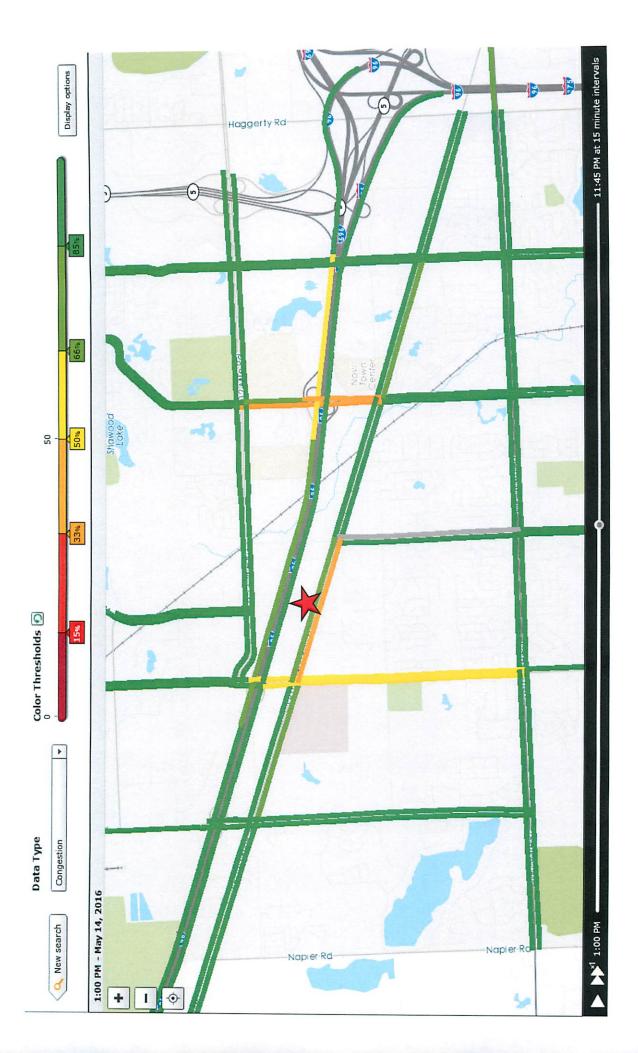


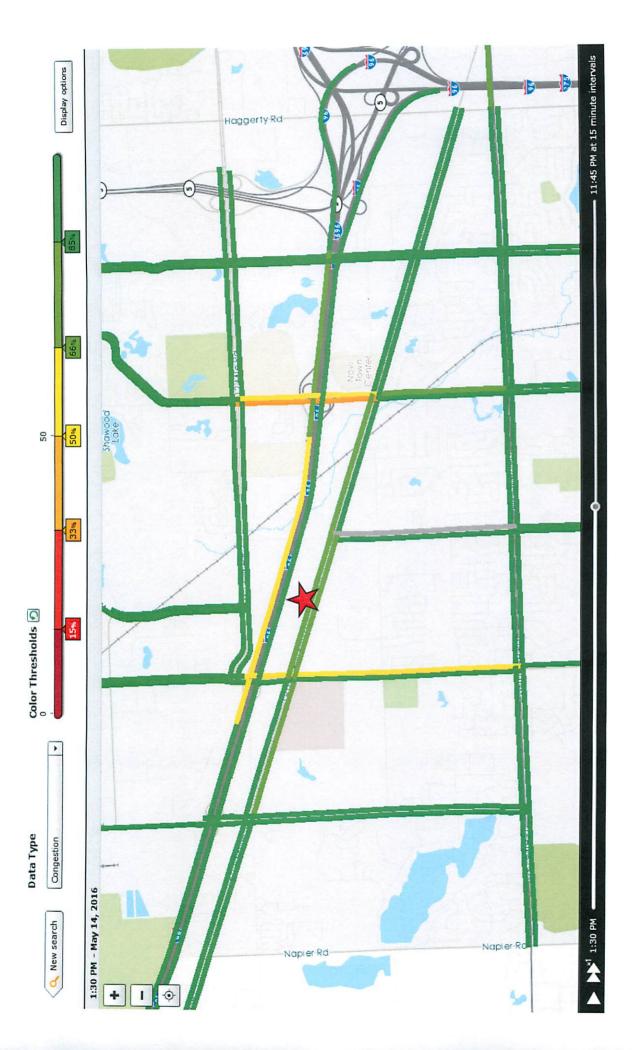


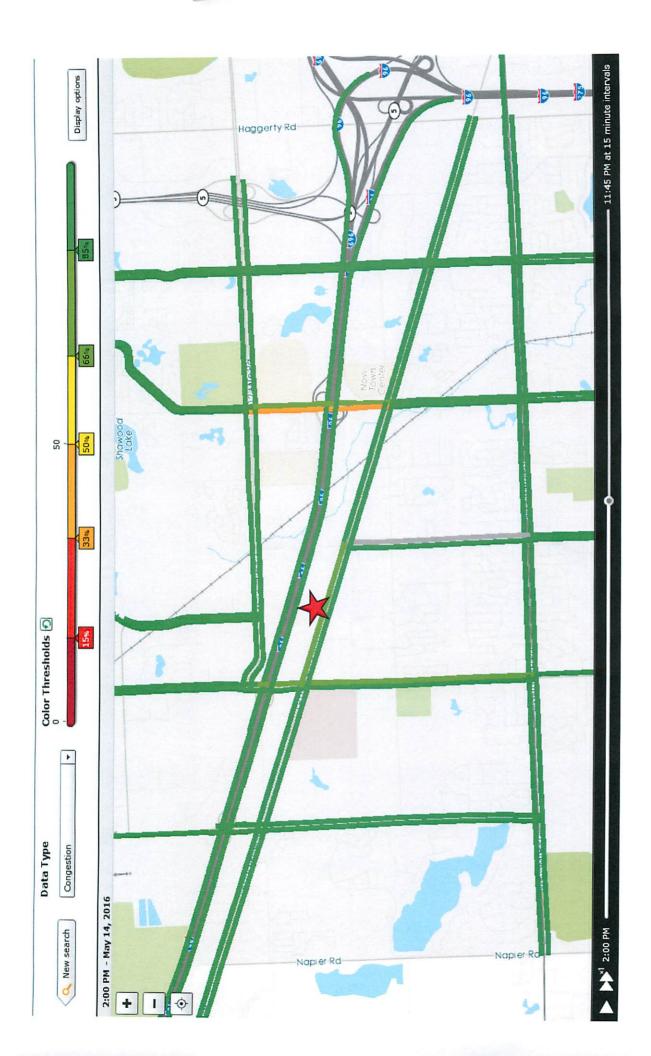


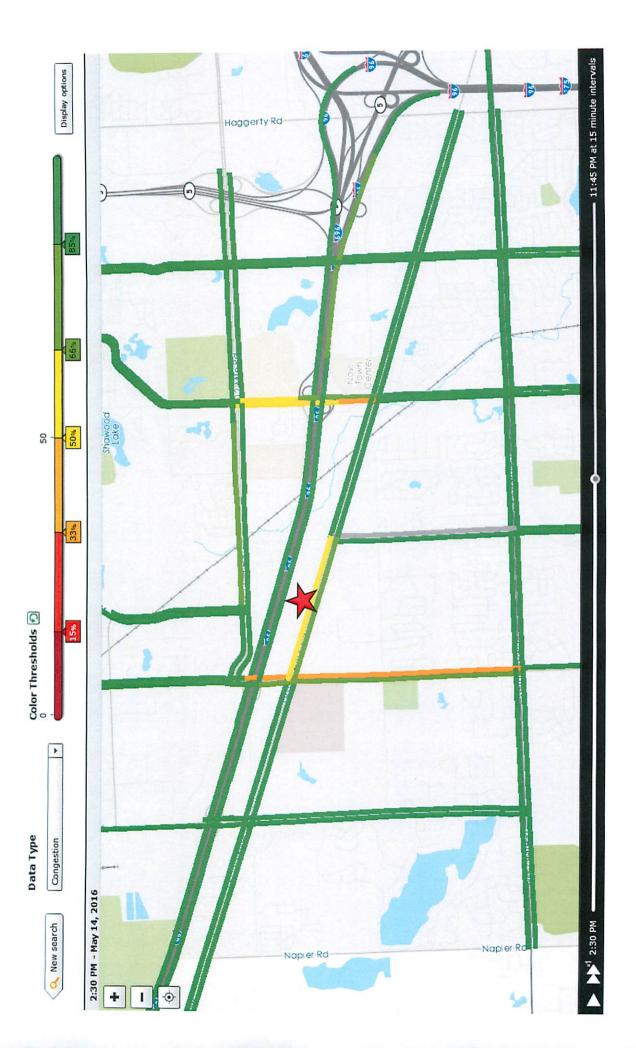


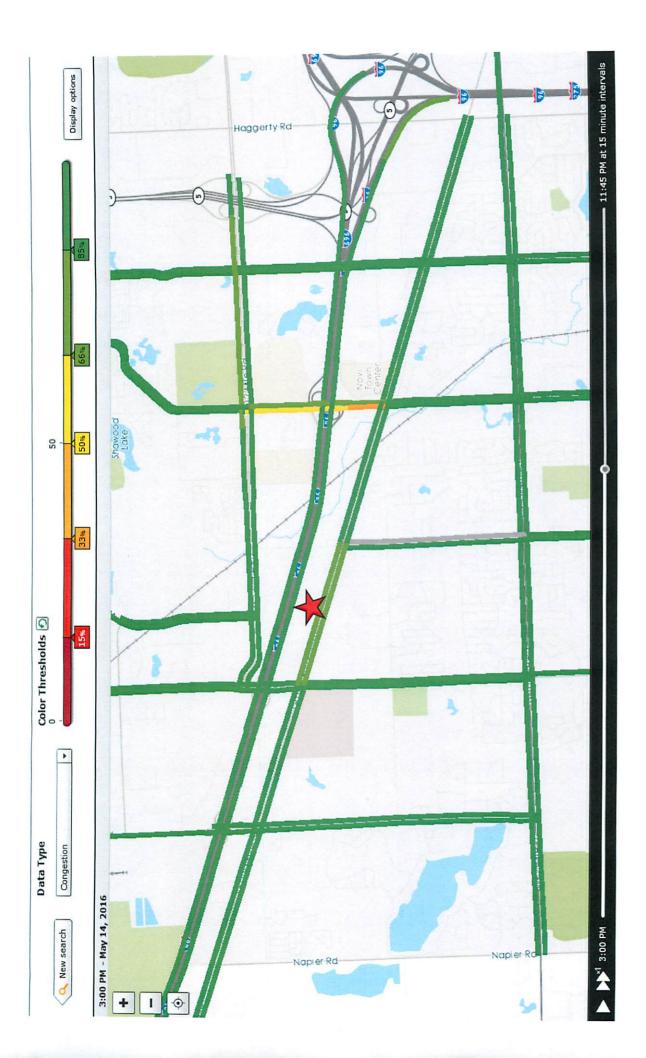




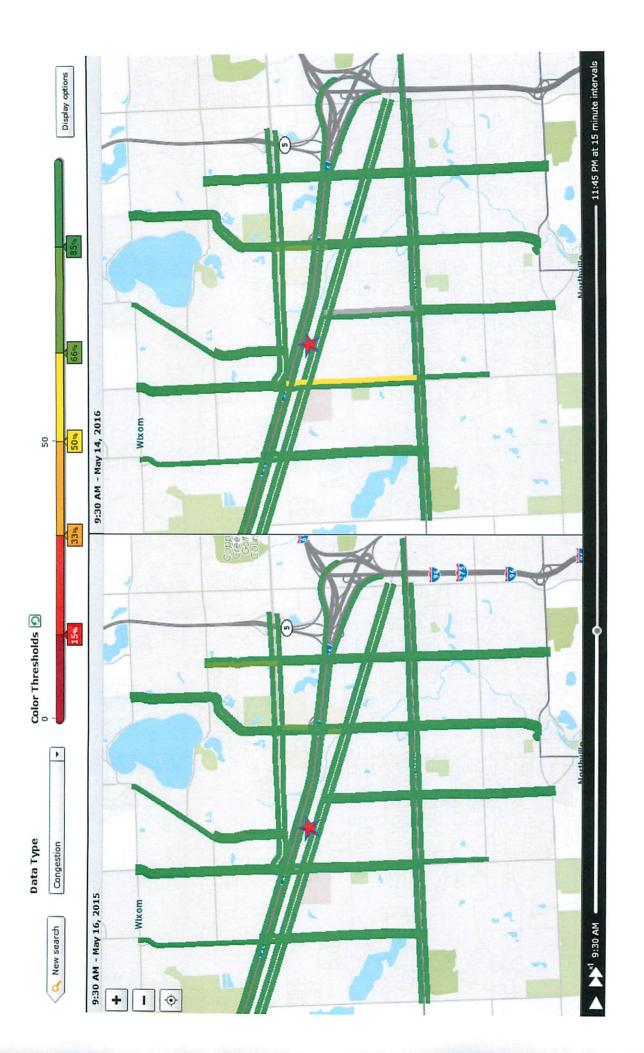


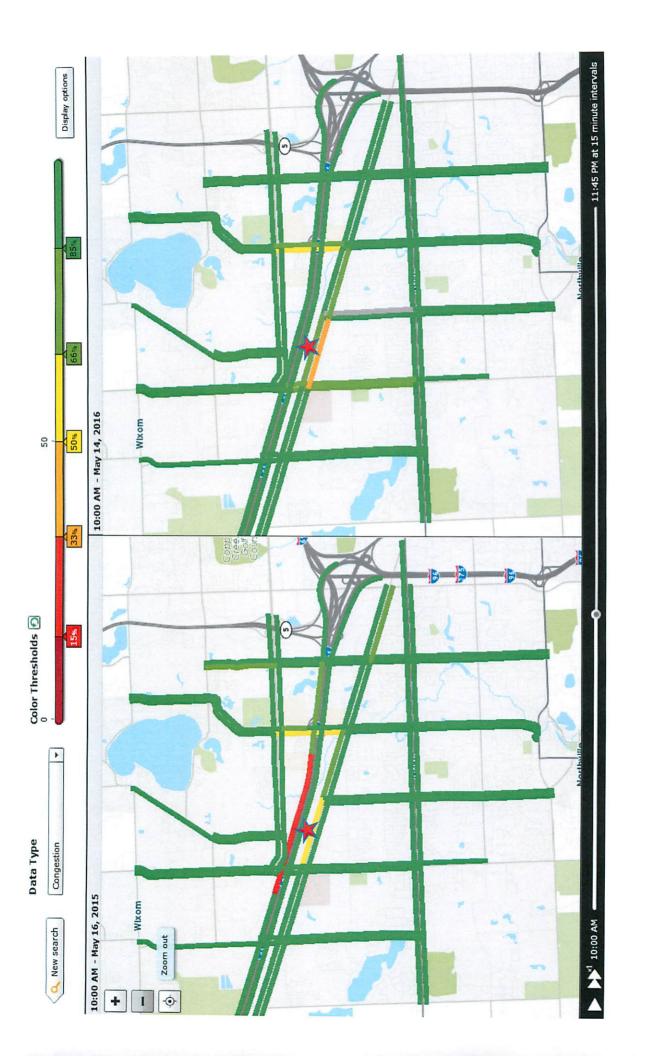


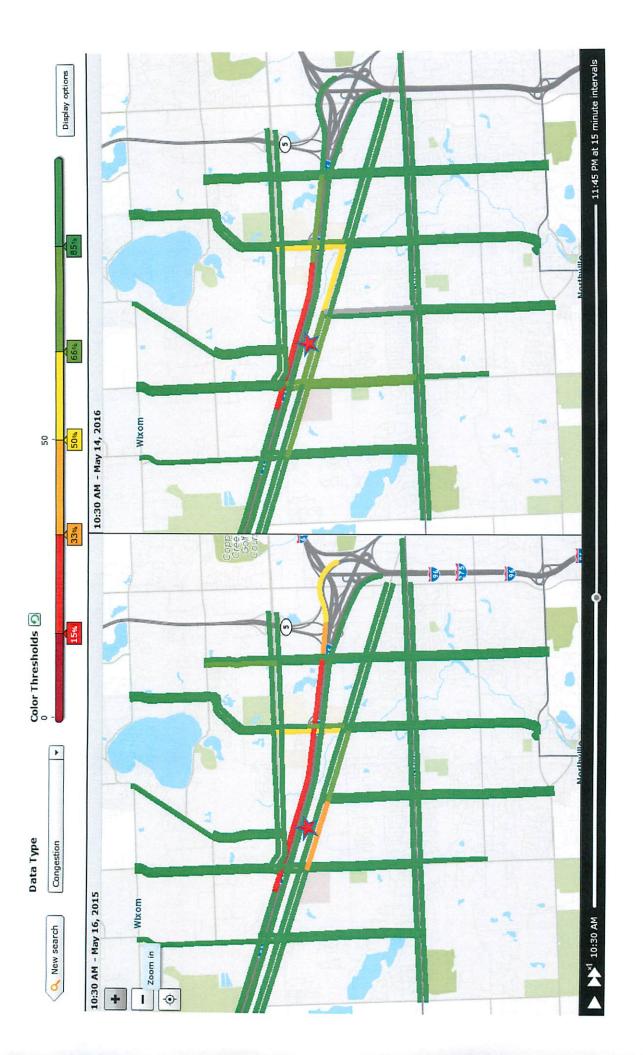


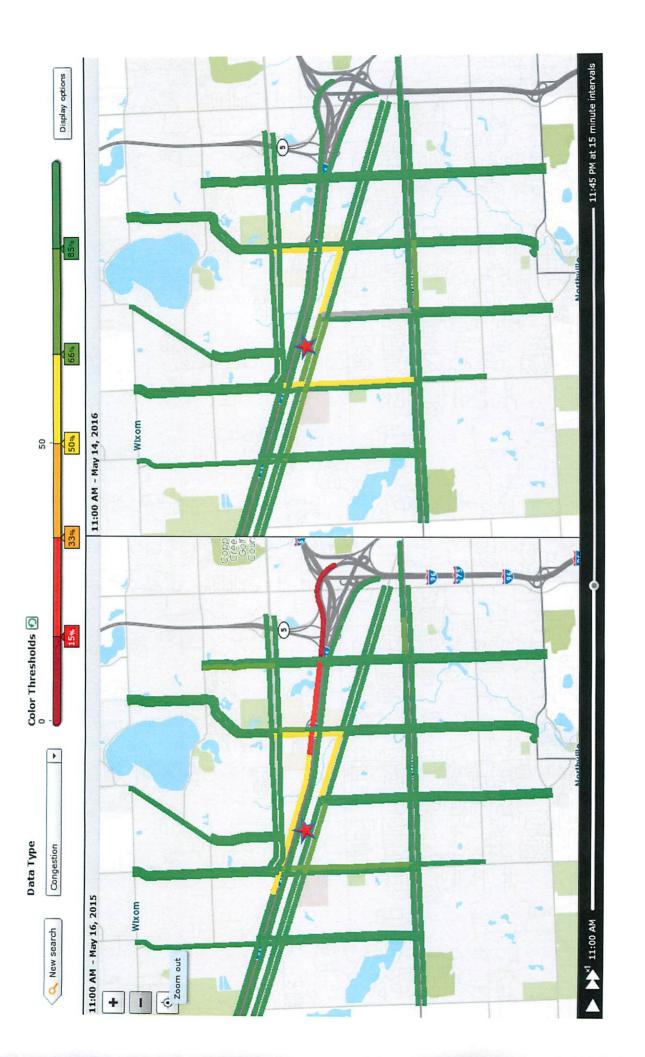


## S Saturday 5/16/15 v Saturday 5/14/16 Congestion

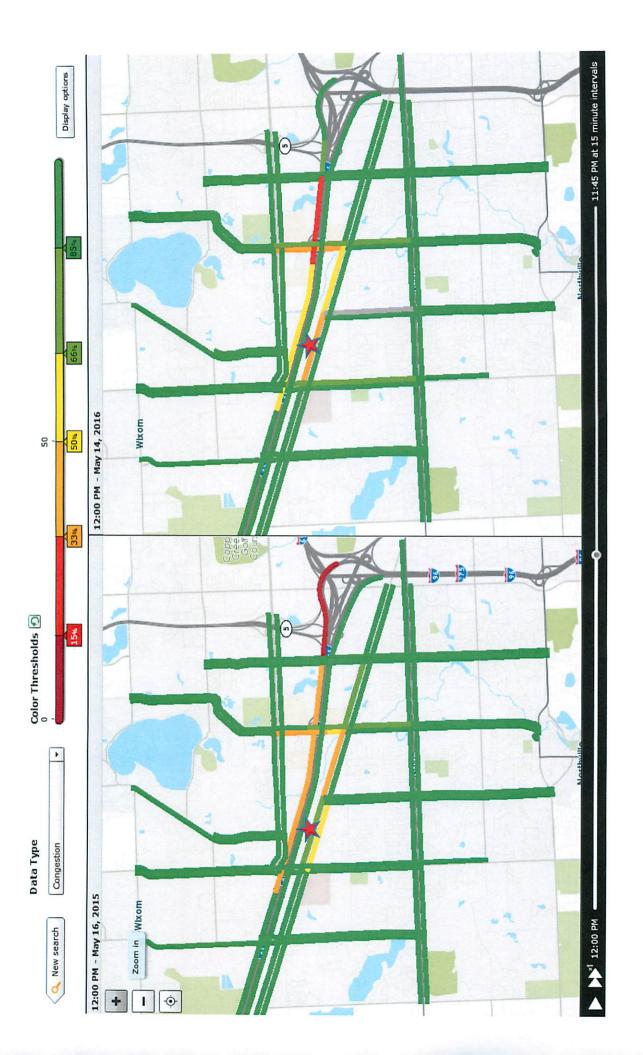


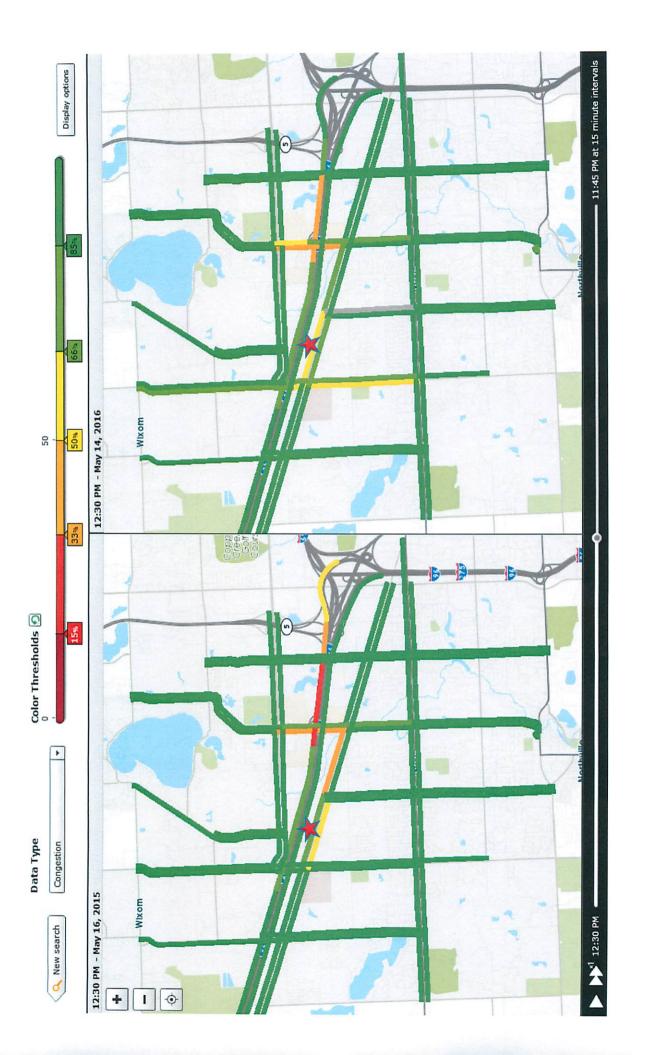


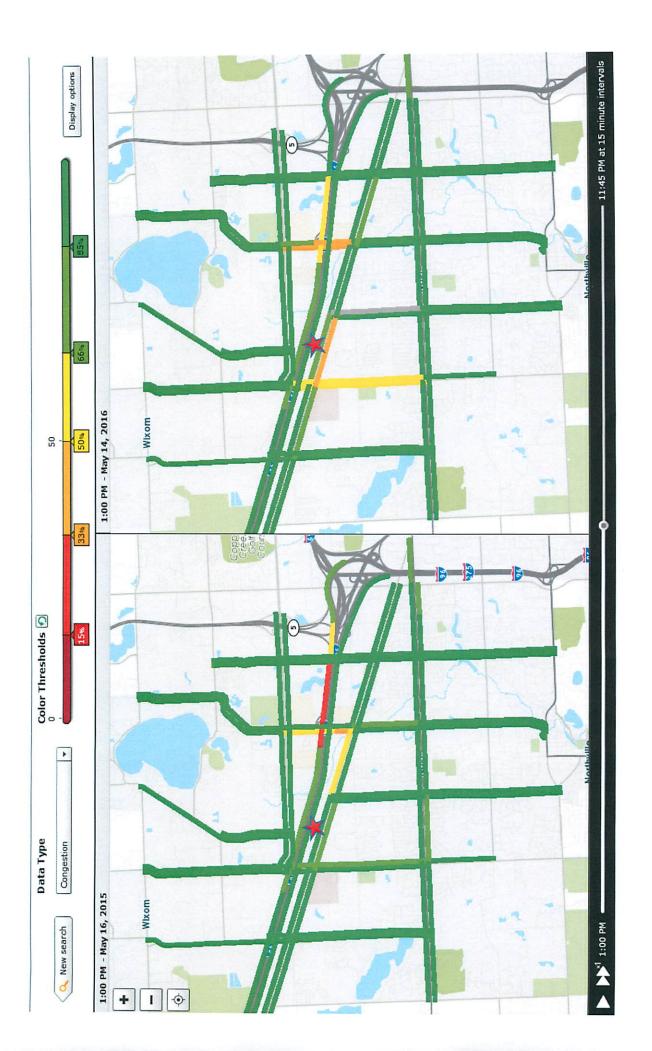


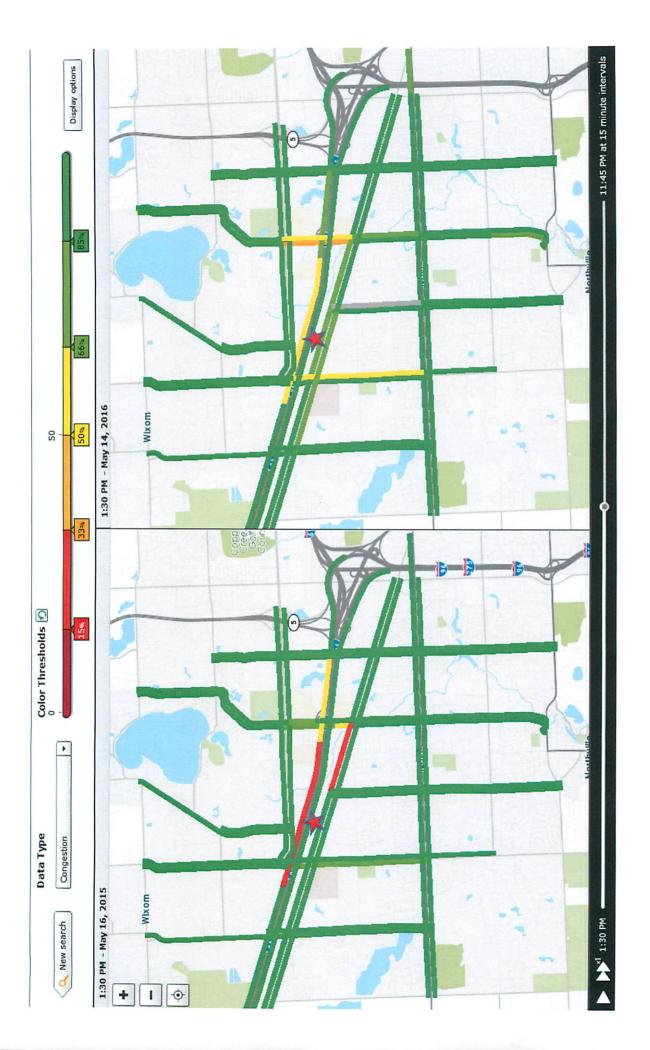


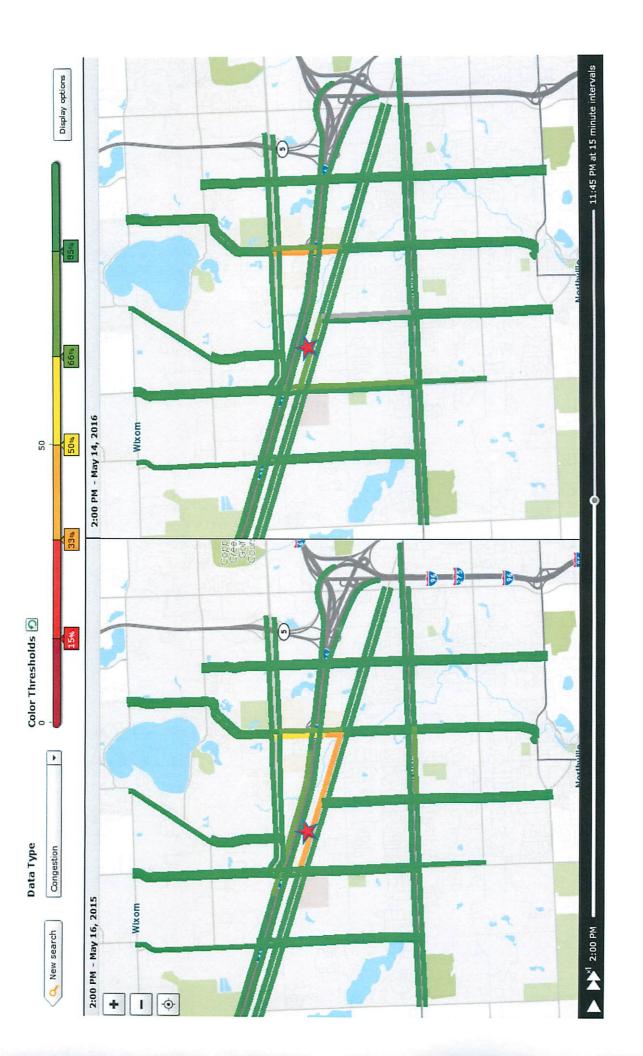


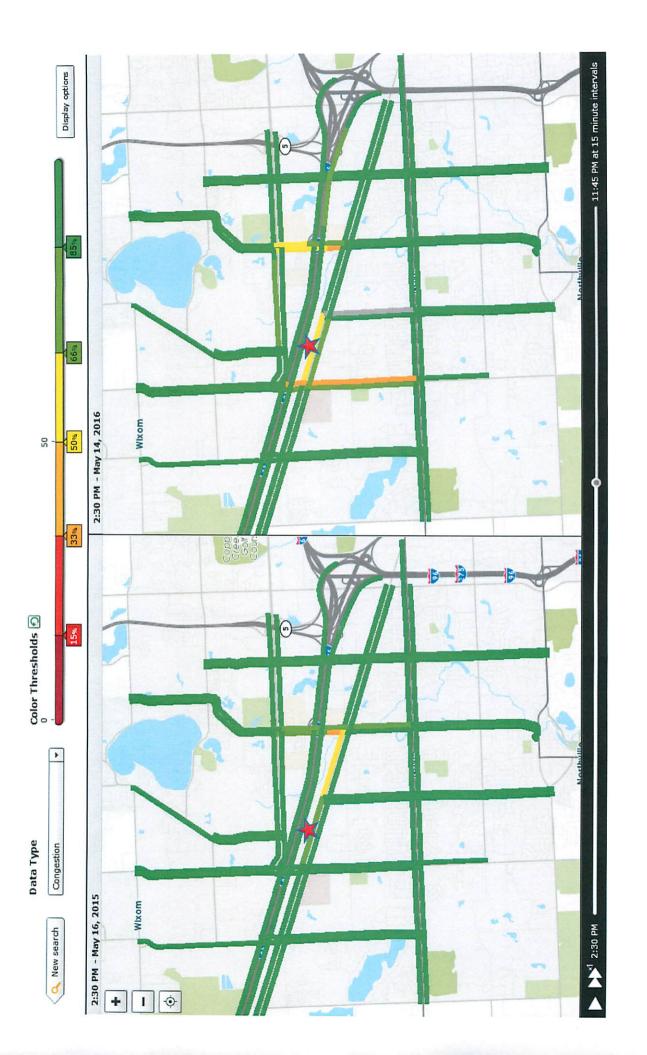


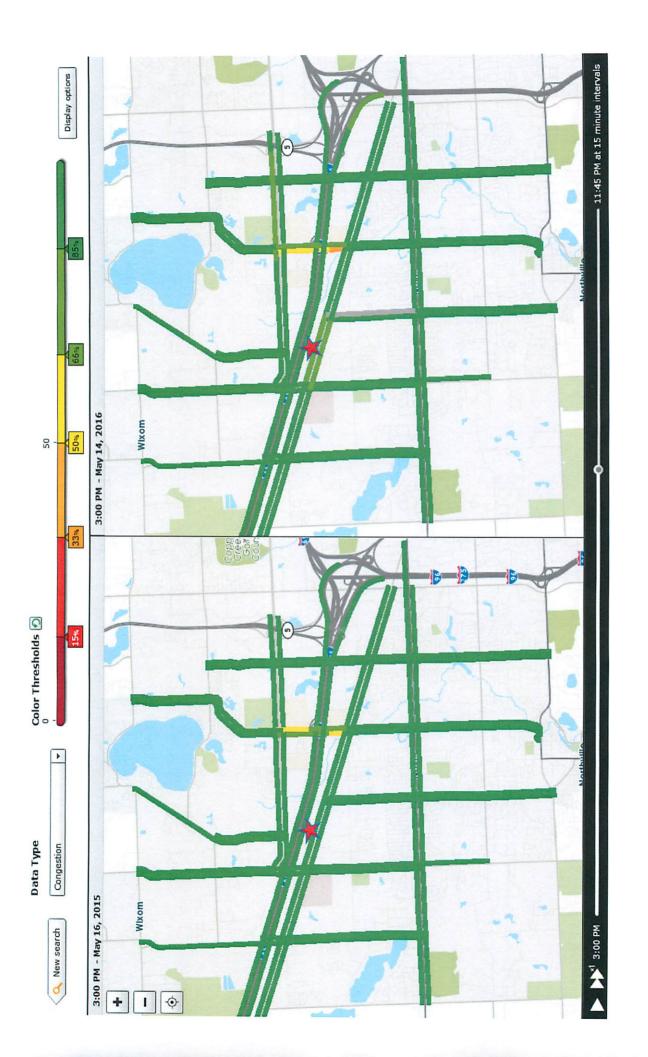














## Memo

To: Maureen Peters
From: Blair Bowman
Date: 7/27/2016

Re: METP and your requested response to Key Elements

### Maureen,

Sorry that it took me a little longer than expected to respond as you'd requested and update the METP to include and address the key elements in your memorandum of July 13, 2016. First, I believe you have now received the traffic counts and were performed by Fleis & Vandenbrink, Inc. Secondly, I have addressed each one of your key elements and included it within the METP and provided an excerpt below:

Summary of Key Elements of the METP:

1. Determination that threshold is likely to be met.

Element 1 – Provide a description as to the process that SCS will follow to determine whether or not the anticipated event will meet or exceed the threshold for triggering the METP. For example, how will the anticipated event volumes be estimated? Reasonable due diligence and information gathering would be conducted in advance of booking an event of major size. Information will be requested as it relates to the promoter's expectations as far as attendance, length of stay, and the type and nature of event as it relates to the number of attendees per vehicle. i.e. Family event vs. large business gathering where a family event would likely have 3+ attendees per vehicle and a large scale business gathering would have on order of 1.25-1.5 attendees per vehicle on average. Information will be requested as it relates to other venue experience related to the event and contacts will be made with operators of those venues to draw as much information as possible. At this point, the proposed threshold would be 16,000 persons per day attendance with 50% of those attendees coming within a peak two-hour period. We would also propose in an event with an exact start and conclusion time, that we would use a threshold of 7,500 people.

2. Showplace notifies the City of the future event.

**Element 2** – Consider a timeline for sending notifications. It is best to plan for events several weeks prior to their occurrence, so that all stakeholders have adequate time to review their responsibilities and plan for the event.

We would look to schedule an event and provide notification with at minimum thirty (30) day notice. In the unlikely case of a rapid booking request we would gather and send information as soon as possible. An

- example may be during election cycles where a particular candidate for major office swiftly books or calls for a rally of some type expecting to draw large crowds.
- 3. Notification goes out to all coordinating agencies and organizations, including but not limited to the, Michigan Department of Transportation, Michigan State Police, Oakland County Road Commission, Novi Police/Public Safety, City of Novi Administration, Suburban Collection Showplace staff and event producers.
  - **Element 3** Consider developing stakeholder "groups" for each of the events requiring the enactment of the METP, as it is likely that not all parties are required to be involved with all events. Consider what information to include with the notification so that the stakeholder can adequately begin planning efforts.
  - We had developed an Event Information and Distribution Sheet that was in draft form which we distributed at our recent meeting. I believe that this element will have to be developed with experience and in the process we will include all stakeholders in the distributions and request that they indicate whether they feel appropriate that they or their organization are involved and what their efforts would consist of.
- 4. Depending on the level and duration of the expected traffic volumes, the plan will include opening of such other gates/entrances to the west, including "Gate 3" and "Gate 4" identified in the attached overall site plan.
  - **Element 4** Should either the "Gate 3" or "Gate 4" entrances be used for ingress traffic operations, the SCS should perform a right-turn taper/lane warrant analysis as part of the site plan review process to determine if geometric modifications are needed.
  - As you know, we are not proposing any right-of-work and only very limited and temporary uses of gates 3 and 4 for events. In the case of a major event we would by definition have the involvement of and the readiness of law enforcement agencies that could if necessary initiate traffic direction into these gates.
- 5. If determined to be either necessary or beneficial, additional ancillary overflow lots in and around the Showplace/fairgrounds may be utilized. These overflow lots will be natural/grass surfaced lots and when appropriate will be operated by charitable and community organizations with a portion or all of the proceeds (if any charge is made for the use of the parking lots) going to these charity/community organizations.
  - **Element 5** The event-specific METP should indicate whether or not auxiliary, offsite lots will be used, the organizations who will be operating the lots and the means by which users will travel to/from the off-site lot and the event venue.

We agree and will provide this information.

- 6. If determined to be either necessary or beneficial and subject to availability, shuttle lots may be utilized including but not limited to coordination with the Novi Public Schools for use of any available school parking lot area.
  - **Element 6** The event-specific METP should clearly indicate where shuttle lots will be located and the times that the shuttle services will be offered.

We agree and will provide this information.

7. Coordination and optimization of all signal timing within the reasonable geographic area through communication with Oakland County Road Commission Signalization Department.

Element 7 – The METP should identify the affected area of the event and indicate whether or not the Road Commission for Oakland County (RCOC) has alternative signal timing plans available for implementation. If available, the METP should indicate the times and durations the alternative timing plans will be active. We agree and will coordinate this with RCOC.

8. If determined to be either necessary and or beneficial, coordination of active physical traffic control by appropriate department personnel. Examples may include ramps on I-96, overpasses and intersections, and potentially entrances/exits at the Showplace itself.

Element 8 – The METP should identify what, where, when and who will be responsible for any roadway/ramp traffic control measures that will be needed. We agree and will use the plan to coordinate these efforts.

9. Coordination of appropriate, allowable messages delivered through the DMS Message System (MDOT highway, large reader board).

Element 9 – Dynamic message signs (DMS) can be a useful tool in event traffic management and the Michigan Department of Transportation (MDOT) DMS resources may be used for events at the SCS. Prior to the event, the SCS should coordinate with MDOT to develop the message plans and applicable locations of DMS based on the event location. The locations of DMS and proposed message plans should be included in the METP, and the times for running any planned messages should be included. Likewise, the protocol for communicating the need for revised/alternate message plans should be outlined in the METP.

We agree and will use the plan to coordinate these efforts.

10. A pre-implementation meeting will be held prior to any event requiring the METP and a post-event meeting/follow up will be held to identify any points of concern or adjustments that may be required.

## Element 10 – Indicate the timeline for scheduling such pre-planning and postanalysis meetings in the METP.

Event information and distribution list worksheet will be distributed no later than thirty (30) days prior to event. A meeting of appropriate stakeholders will be conducted no further than ten (10) days from an event. A follow up meeting post-event will be held as soon as possible but in no event no more than thirty (30) days after the event.

11. A final core element to this approach is that it is clearly understood in the event of experience related to a particular event or continuing regular reoccurring issues being associated with future, major events additional improvements to the plan and/or infrastructure may be required. An example of which would be the installation of additional turning lanes at or near the westerly gates. Another potential would be with a significant amount of new major events requiring department personnel, a Cost/Services Plan may need to be developed.

**Element 11** – Any necessary roadway modifications should be included as part of the proposed site plan; therefore, any anticipated use of external driveways should be reviewed and submitted to the City for consideration, and turn lane warrants should be performed.

As you know, we are not proposing any additional right-of-way improvements and are proposing to use for the vast majority of operations our existing entrances.

I am circulating a copy of the updated plan, a copy of this memo, and a copy of our draft event information and distribution list work sheet to all of the stakeholders who have been involved with the planning process and who attended the last meeting. I look forward to seeing you tonight and to working with you on into the future to refine and develop the overall METP.

# Expansion Suburban Collection Showplace / Michigan State Fairgrounds

### MAJOR EVENT TRAFFIC PLAN (METP)



Notify - Communicate - Plan - Implement - Review Improve!

Prepared for the City of Novi Site Plan Submittal Process Updated June 27, 2016

### Outline of Major Event Traffic Plan Program--Suburban Collection Showplace/Michigan State Fairgrounds

#### Introduction and Opening Summary:

A historical summary of the Novi Expo operations and the newly constructed Showplace operations and related traffic issues and improvements should be provided. Of particular importance, is the historical issues relating to the poor ingress and egress at the former Novi Expo site with one point of access and very limited parking creating regular traffic backups and congestion issues up until the relocation in 2005. With the construction of the new facility an extraordinary amount of traffic planning and future road improvement programming, was engaged in and ultimately completed. These include but are not limited to having three distinct entrance and exit points, to the new Showplace grounds with the main entrance being fully signalized and an additional service exit/entrance from Taft Road. The original development included the installation of a turning lane along the north side of Grand River from the main entrance at the east all the way to the west entrance. In addition, the Showplace project and the economic development it promised, was used as a catalyst for over five million dollars of additional road funding dedicated for the improvement of Grand River to a full five-lane section with a dedicated left hand turn lane. This funding along with the interchange improvements at Beck, Wixom and I-96 as well as the intersection improvements at Grand River and Novi Road and the reconstruction of the "humpback" railroad bridge over the CSX railway completed a three+ mile section of improvement to the Grand River corridor with the Showplace located directly in the middle. Since its original development and opening in 2005, and its subsequent expansion along with the addition of the Hyatt Place Hotel in 2013 the Showplace has continued to attract literally hundreds of events annually and operates with little or only modest traffic impacts with the vast majority of the time. In the last eleven years, and only in recent years, one major event (the Motor City Comic-Con), has provided traffic movement challenges. These challenges have arisen not only due to the large number of overall attendees and increase in popularity of the event, as importantly the short-duration of time in which the peak amount of attendance occurs and average length of stay of the attendees. In 2016, a major coordination effort was undertaken between Michigan Department of Transportation, Michigan State Police, Oakland Road County Commission, Novi Police, City of Novi Administration and Showplace event producer/staff to address and minimize traffic congestion issues. At the core of this planning effort is the basis that the Showplace operations and infrastructure can adequately handle the vast majority of current and future proposed events with little to no planning efforts. However, it is understood that in certain instances like Comic-Con and any other future events that would near a comic-con like threshold that is incumbent upon the Showplace administration to notify and engage in a Major Event Traffic Plan (METP) Program.

In conclusion, it is important to note that at this time, within the current schedule and future booking schedule no events other than the Motor City Comic-Con and to a lesser extent, the Fifth Third Bank Michigan State Fair, are expected to require the invocation of the METP! The events currently slated for the expansion space would provide for the growth of existing events with the most critical growth needs being that of trade and industry style events which have large floor space requirements but very small amounts of attendance as compared to major consumer style events.

#### **METP Structure:**

#### **Normal Showplace Operations:**

Use of Current Entrances and Exits Only:

As indicated in the opening summary, the significant amount of parking and infrastructure enjoyed by the Showplace is adequate to handle and provide for the vast majority of events that will be schedule now and into the future. During these times of normal operations the Showplace will function utilizing its current entrances and exits only. Going forward, the entrances utilized during normal operation shall be "Gate 1," which is the main east signalized entrance, and "Gate 2" which is the current west entrance serving as the common drive for Belfor truck and the Showplace. In addition, the center curb-cut into the south lots will be used as an exit-only and the Taft Road service drive will continue to be used in that capacity as well. Even in the case of major consumer events currently scheduled such as Outdoorama, the Women's Show, the Golf Show, Snowmobile Show, etc., these entrances will be sufficient and continue to service the inflow and outflow in an organized fashion for these events.

#### New Expanded Surfaced Parking Areas:

A key part of the new expansion plan is to increase substantially overall surfaced parking even considering the elimination of \_\_\_\_\_ spaces relating to the expansion of the facility itself. Access to the newly expanded parking areas immediately west of the Showplace site will be via predominately the west entrance, Gate 2. The versatility and flexibility needed from the surfaced areas necessitate certain variances from traditional parking lot standards and we will be working with the City to develop the most useful and user-friendly combination throughout the finalization of the site-planning process.

#### Implementation of the METP:

If any future potential event is expected to have certain thresholds of overall attendance, however, more importantly, peak amounts of vehicle trips, the Showplace administration shall notify the city administration and initiate the METP procedures. To assist in establishing this threshold and trigger mechanism, we have included the trip generation information and car counts from the peak Saturday time frames from the 2016 Motor City Comic-Con. We have also included some of the correspondence/communications between the various agencies relating to the planning effort, the implementation, and the ultimate results of the 2016 effort. We are proposing that a peak period demand of 80% of the traffic experienced during Comic-Con would trigger the need and use of the METP.

#### Summary of Key Elements of the METP:

1. Determination that threshold is likely to be met.

**Element 1** – Provide a description as to the process that SCS will follow to determine whether or not the anticipated event will meet or exceed the threshold for triggering the METP. For example, how will the anticipated event volumes be estimated?

Reasonable due diligence and information gathering would be conducted in advance of booking an event of major size. Information will be requested as it relates to the promoter's expectations as far as attendance, length of stay, and the type and nature of event as it relates to the number of attendees per vehicle. i.e. Family event vs. large business gathering where a family event would likely have 3+ attendees per vehicle and a large scale business gathering would have on order of 1.25-1.5 attendees per vehicle on average. Information will be requested as it relates to other venue experience related to the event and contacts will be made with operators of those venues to draw as much information as possible. At this point, the proposed threshold would be 16,000 persons per day attendance with 50% of those attendees coming within a peak two-hour period. We would also propose in an event with an exact start and conclusion time, that we would use a threshold of 7,500 people.

2. Showplace notifies the City of the future event.

**Element 2** – Consider a timeline for sending notifications. It is best to plan for events several weeks prior to their occurrence, so that all stakeholders have adequate time to review their responsibilities and plan for the event.

We would look to schedule an event and provide notification with at minimum thirty (30) day notice. In the unlikely case of a rapid booking request we would gather and send information as soon as possible. An example may be during election cycles where a particular candidate for major office swiftly books or calls for a rally of some type expecting to draw large crowds.

3. Notification goes out to all coordinating agencies and organizations, including but not limited to the, Michigan Department of Transportation, Michigan State Police, Oakland County Road Commission, Novi Police/Public Safety, City of Novi Administration, Suburban Collection Showplace staff and event producers.

Element 3 – Consider developing stakeholder "groups" for each of the events requiring the enactment of the METP, as it is likely that not all parties are required to be involved with all events. Consider what information to include with the notification so that the stakeholder can adequately begin planning efforts.

We had developed an Event Information and Distribution Sheet that was in draft form which we distributed at our recent meeting. I believe that this element will have to be developed with experience and in the process we will include all stakeholders in the distributions and request that they indicate whether they feel appropriate that they or their organization are involved and what their efforts would consist of.

4. Depending on the level and duration of the expected traffic volumes, the plan will include opening of such other gates/entrances to the west, including "Gate 3" and "Gate 4" identified in the attached overall site plan.

**Element 4** – Should either the "Gate 3" or "Gate 4" entrances be used for ingress traffic operations, the SCS should perform a right-turn taper/lane warrant analysis as part of the site plan review process to determine if geometric modifications are needed.

As you know, we are not proposing any right-of-work and only very limited and temporary uses of gates 3 and 4 for events. In the case of a major event we would by definition have the involvement of and the readiness of law enforcement agencies that could if necessary initiate traffic direction into these gates.

5. If determined to be either necessary or beneficial, additional ancillary overflow lots in and around the Showplace/fairgrounds may be utilized. These overflow lots will be natural/grass surfaced lots and when appropriate will be operated by charitable and community organizations with a portion or all of the proceeds (if any charge is made for the use of the parking lots) going to these charity/community organizations.

**Element 5** – The event-specific METP should indicate whether or not auxiliary, offsite lots will be used, the organizations who will be operating the lots and the means by which users will travel to/from the off-site lot and the event venue.

We agree and will provide this information.

6. If determined to be either necessary or beneficial and subject to availability, shuttle lots may be utilized including but not limited to coordination with the Novi Public Schools for use of any available school parking lot area.

**Element 6** - The event-specific METP should clearly indicate where shuttle lots will be located and the times that the shuttle services will be offered.

We agree and will provide this information.

7. Coordination and optimization of all signal timing within the reasonable geographic area through communication with Oakland County Road Commission Signalization Department.

**Element 7** – The METP should identify the affected area of the event and indicate whether or not the Road Commission for Oakland County (RCOC) has alternative signal timing plans available for implementation. If available, the METP should indicate the times and durations the alternative timing plans will be active.

We agree and will coordinate this with RCOC.

8. If determined to be either necessary and or beneficial, coordination of active physical traffic control by appropriate department personnel. Examples may include ramps on I-96, overpasses and intersections, and potentially entrances/exits at the Showplace itself.

**Element 8** – The METP should identify what, where, when and who will be responsible for any roadway/ramp traffic control measures that will be needed.

We agree and will use the plan to coordinate these efforts.

9. Coordination of appropriate, allowable messages delivered through the DMS Message System (MDOT highway, large reader board).

Element 9 – Dynamic message signs (DMS) can be a useful tool in event traffic management and the Michigan Department of Transportation (MDOT) DMS resources may be used for events at the SCS. Prior to the event, the SCS should coordinate with MDOT to develop the message plans and applicable locations of DMS based on the event location. The locations of DMS and proposed message plans should be included in the METP, and the times for running any planned messages should be included. Likewise, the protocol for communicating the need for revised/alternate message plans should be outlined in the METP.

We agree and will use the plan to coordinate these efforts.

10. A pre-implementation meeting will be held prior to any event requiring the METP and a postevent meeting/follow up will be held to identify any points of concern or adjustments that may be required.

**Element 10** – Indicate the timeline for scheduling such pre-planning and postanalysis meetings in the METP.

Event information and distribution list worksheet will be distributed no later than thirty (30) days prior to event. A meeting of appropriate stakeholders will be conducted no further than ten (10) days from an event. A follow up meeting post-event will be held as soon as possible but in no event no more than thirty (30) days after the event.

11. A final core element to this approach is that it is clearly understood in the event of experience related to a particular event or continuing regular reoccurring issues being associated with future, major events additional improvements to the plan and/or infrastructure may be required. An example of which would be the installation of additional turning lanes at or near the westerly gates. Another potential would be with a significant amount of new major events requiring department personnel, a Cost/Services Plan may need to be developed.

Element 11 – Any necessary roadway modifications should be included as part of the proposed site plan; therefore, any anticipated use of external driveways should be reviewed and submitted to the City for consideration, and turn lane warrants should be performed.

As you know, we are not proposing any additional right-of-way improvements and are proposing to use for the vast majority of operations our existing entrances.





<b>Event Name</b>				
Proposed Date(s)		Proposed Time(s)		
Expected Attendance		Traffic Plan Date/Time		
	TRANSMITTA	L LIST:		
1.	MDOT			
2.	ROAD COMMISSION FOR OAKLAND COUNTY			
3.	CITY OF NOVI POLICE			
4.	MICHIGAN STATE POLICE			
5.	SUBURBAN COLLECTION SHOWPLACE			
Overall Proposed/Required Procedures				
	DATE/TIME	AGENCY	CONTACT	
Use of Adjacent Lots				
Use of Additional Entrances				
Additional Agency				
Involvement				
Traffic Direction				
Closure of any ramps				
Signage				
MDOT – DMS				
Other Signalization / SCATS				
Signanzation / SCATS				





MDOT CHECKLIST				
Details	Date	Time	Completed	
DMS Message System: Determine what message desired			·	
Signalization optimization				





ROAD COMMISSION FOR OAKLAND COUNTY (RCOC) CHECKLIST			
Details	Date	Time	Completed
SCATS system			





Details	Date	POLICE CHECKLIST Time	Completed





MICHIGAN STATE POLICE (MSP) CHECKLIST			
Details	Date	Time	Completed





SUBURBAN COLLECTION SHOWPLACE (SCP) CHECKLIST			
Details	Date	Time	Completed





