City of Fitchburg

Arrowhead Redevelopment Plan
Preliminary Development Scenarios

MSA Professional Services, Inc.

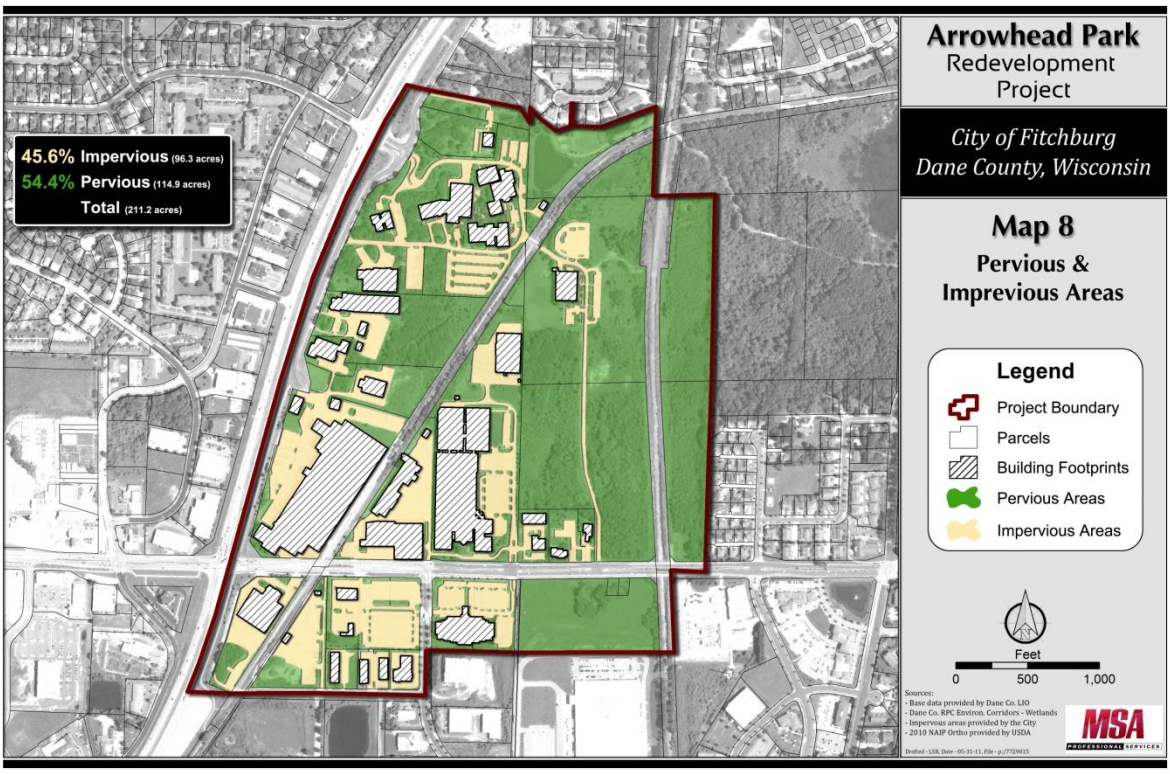
August 9, 2011

Introduction

This is an interim planning document, part of a 6-month process to plan for infill and redevelopment in the Arrowhead planning area, pictured below. The purpose of this project is to identify where and how additional development can be accommodated in this area, with a focus on the needs of existing employers. Traffic and transportation needs are a central consideration – the plan needs to identify new street infrastructure to provide improved access to some parts of the planning area, and the capacity of the existing street network to handle more traffic must be considered.

This document accompanies a series of four exhibits – the redevelopment scenario maps. The first nine pages provide the background analysis on traffic, land use, and parking constraints that were considered in the development of the scenarios. Description and analysis of the four scenarios begins on page 10.

It is important to note that the redevelopment scenarios present a variety of options for both new street infrastructure and new land use, and the ideas presented in these concepts are interchangeable and subject to further refinement. The final preferred street network may be, for example, a variation on Alternative 3, and the final preferred land use plan may be, for example, a variation on Alternative 2. The final preferred redevelopment plan will be prepared during late August and early September based on feedback from residents, business owners, City staff, and City elected officials, and it will be further refined through additional meetings in September and October.



Capacity for Growth – Traffic Constraints

Business growth and development in the Arrowhead planning area is partly dependent upon the capacity of the transportation system to handle that growth. The current system is overloaded during peak hours, as those who travel the network each day know very well. Traffic counts collected in June 2011, during morning and afternoon peaks (6-9 am and 3-6 pm), at each of the major intersections in the study area, confirm that the network peak hours are 7:15-8:15 am and 4:45 to 5:45 pm. During these peak hours it is common to sit through multiple traffic signal cycles, especially at the McKee Road - 18/151 intersection, which is operating beyond its designed capacity. That intersection is the "choke point" of the local network, because it handles so much traffic – over 6,000 vehicles during the PM peak hour.

Our analysis of capacity for more traffic focuses on the McKee Road-18/151 intersection, as we believe that the other smaller intersections in the study area (Commerce Park Drive at McKee Road, Thermo Fisher Driveway at McKee Road, Williamsburg Way at Verona Road Frontage Road) can be expanded and improved as necessary to accommodate the additional traffic volumes that may be proposed. The McKee Road - 18/151 intersection is the limiting point of the network.

Figures 2.1 and 2.2 show traffic volumes through the McKee Road - 18/151 intersection during the AM and PM peak hours. The graphs incorporate an approximate indication of how the intersection performs as volumes increase. Level of Service (LOS) "C" is acceptable performance, LOS "D" indicates moderate delays, and LOS "E" indicates congestion, such as left turn lanes that are backing up and requiring drivers to wait through multiple signal cycles. These figures show that, at present, the intersection is performing poorly between 7:15 and 8:30 AM, and between 4:00 and 6:00 PM.

Figure 2.1 – McKee Road - 18/151 AM Peak Traffic Volumes, 2011

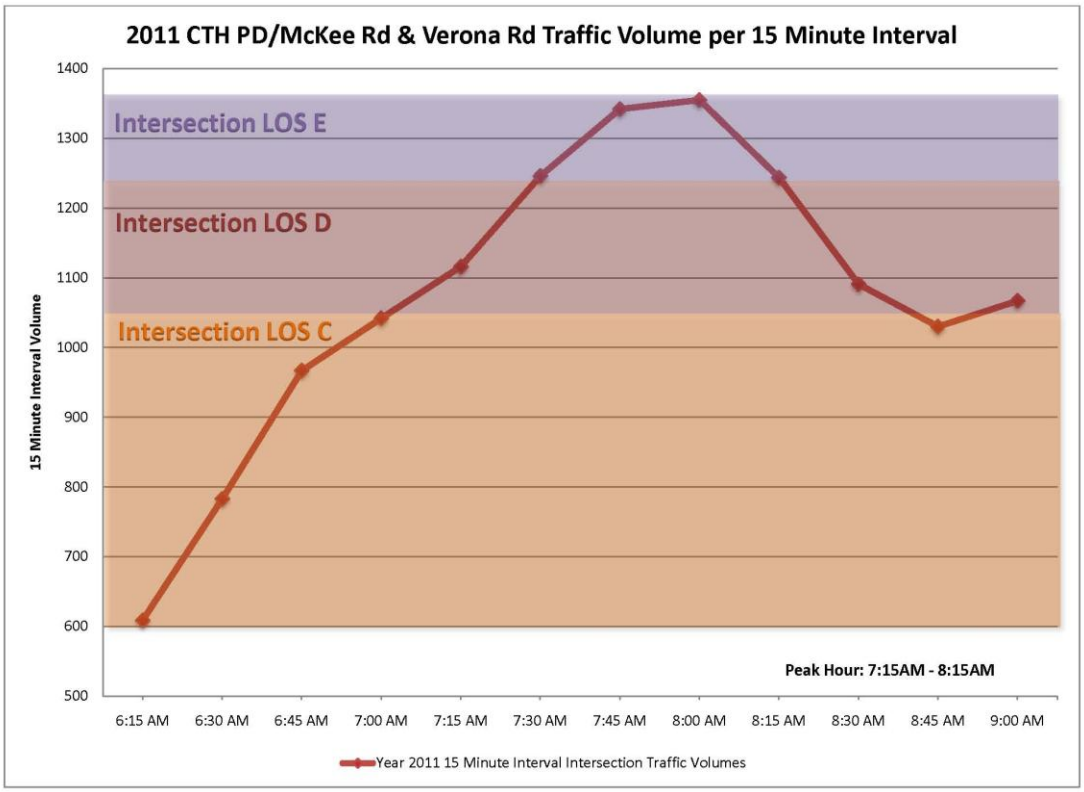
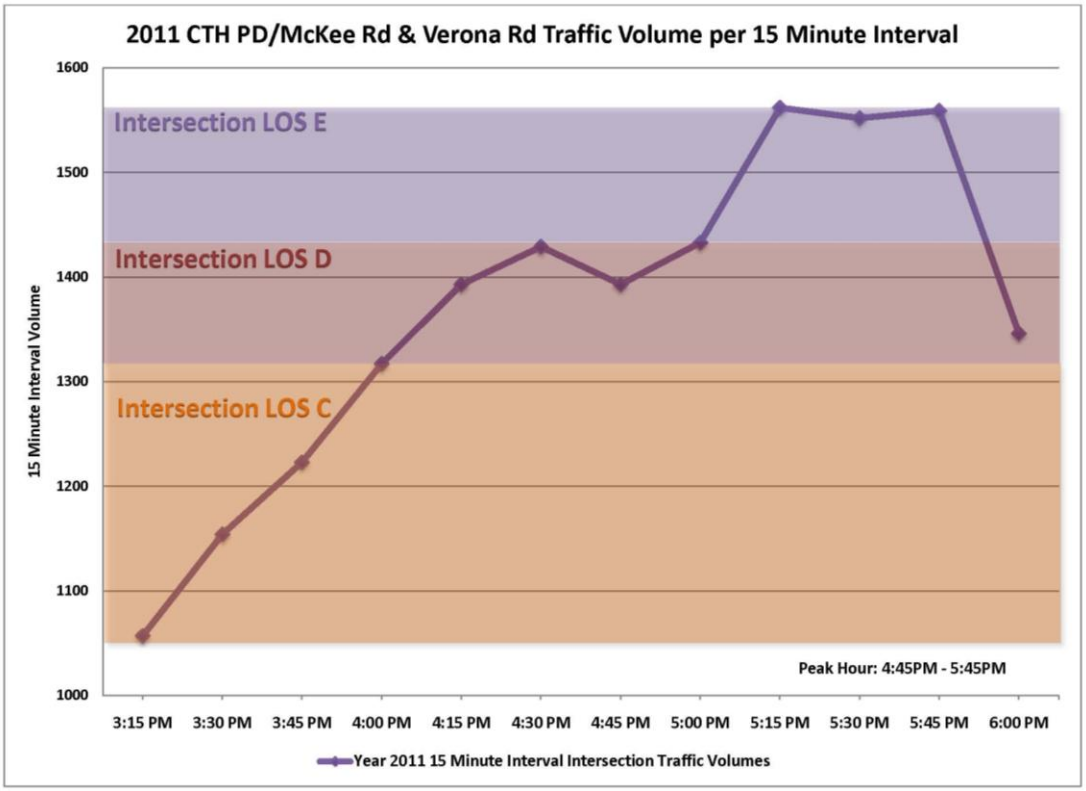


Figure 2.2 – McKee Road - 18/151 PM Peak Traffic Volumes, 2011



The McKee Road - 18/151 interesection is programmed for conversion to a grade-separated interchange in 2017. 18/151 will pass over McKee Road, with ramps providing full access to and from McKee. This project will utilize concrete walls instead of vegetated slopes to preserve a small footprint and will therefore require little additional right-of-way.

Wisconsin Department of Transportation's planning for this interchange utilized a traffic model to describe existing conditions, and to estimate traffic growth through 2030. It is important to note that in some cases our 2011 peak hour counts for certain movements through the intersection exceed the WisDOT projections for the same movements in 2030. The data collected in this study has been shared with WisDOT and will be considered during design of the new interchange, scheduled to begin in late 2011.

In light of this discrepancy, we prepared our own projections for peak hour traffic. We have estimated the peak hours traffic volumes that the interchange will be carrying in 2030, assuming 1.5% exponential annual growth of traffic in the AM and PM one-hour peaks, and 1% exponential growth of traffic outside those one-hour peaks. Figures 2.3 and 2.4 show the AM and PM peak periods in 2030, with the new interchange.

Figure 2.3 – McKee Road - 18/151 AM Peak Traffic Volumes, 2030 (Estimated)

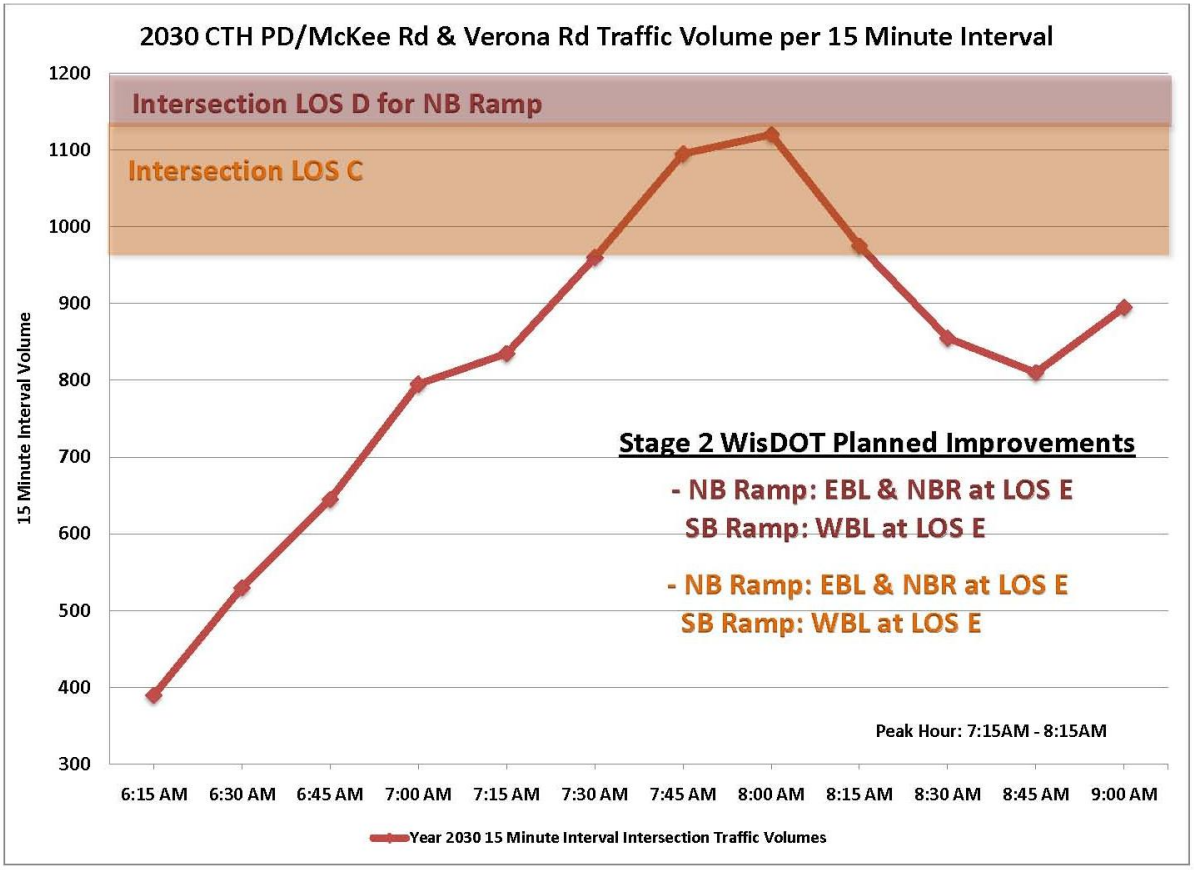
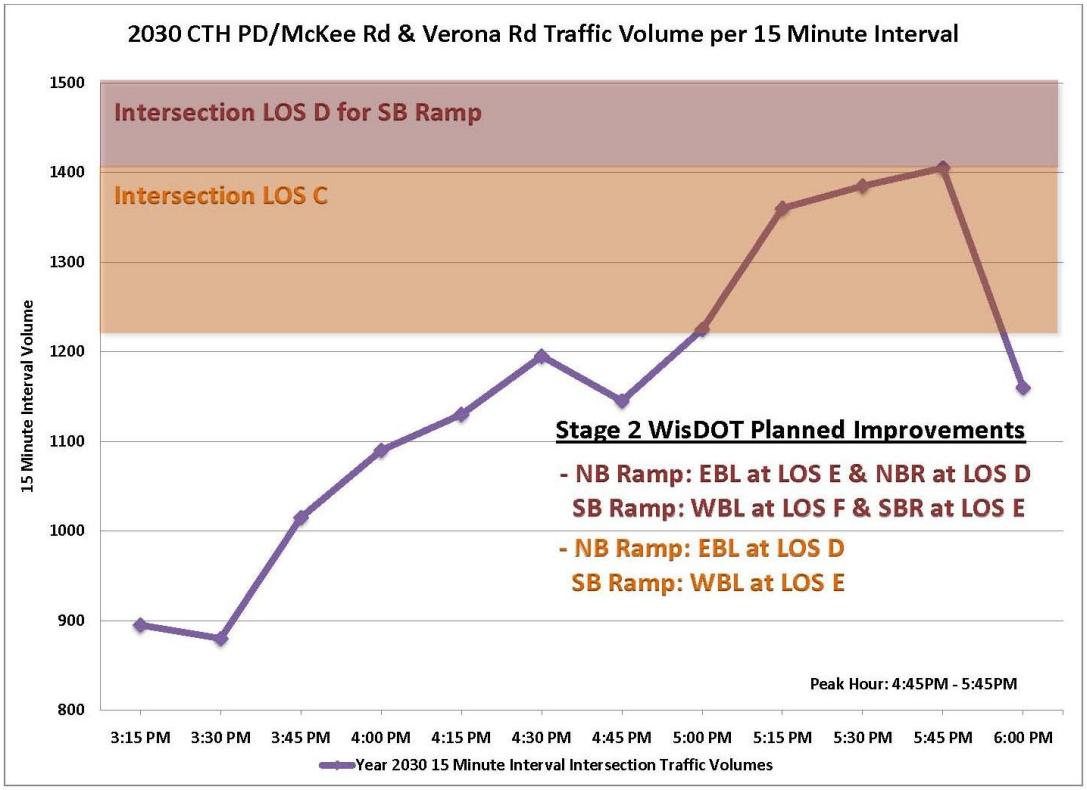


Figure 2.4 – McKee Road - 18/151 PM Peak Traffic Volumes, 2030 (Estimated)



These graphs tell us that even after the new interchange is completed, the interchange, considered as a whole, will be operating near capacity in 2030, and specific movements will be performing at Level of Service (LOS) "D" or "E", even if we add no new development within the Arrowhead planning area.

The expected return of congestion here by 2030 leads us to this conclusion: we shouldn't add substantial new development to the adjacent planning area unless we can prevent most of the resulting trips from occuring in the peak hours, especially 7:30-8:15 AM and 5:00-5:45 PM.

Assuming we can influence the timing of trips generated by new development in the planning area, how many additional trips can we plan for? An exact answer is not possible, because it depends upon the timing of the new trips. If businesseses in the planning area could commit to operating and generating trips only between the hours of 7:00 PM to 6:00 AM, we could add thousands of new trips and a great deal of development without increasing congestion during the peak periods. A more realistic approach is to analyze the longer AM and PM peak periods – 6:30-8:30 AM and 3:30-5:30 PM - and determine how much additional traffic can be added to these periods, if distibuted mostly outside the peak one-hour period.

The most practical method of determining the limit on new trips is to focus on the specific movements within the intersection most susceptible to severe congestion.

AM Peak Movements Susceptible to Congestion (LOS "D" or worse):

- **northbound right onto eastbound McKee (movement most likely to become congested in AM peak)**
- southbound left onto eastbound McKee
- eastbound left onto northbound 18/151
- eastbound through on McKee

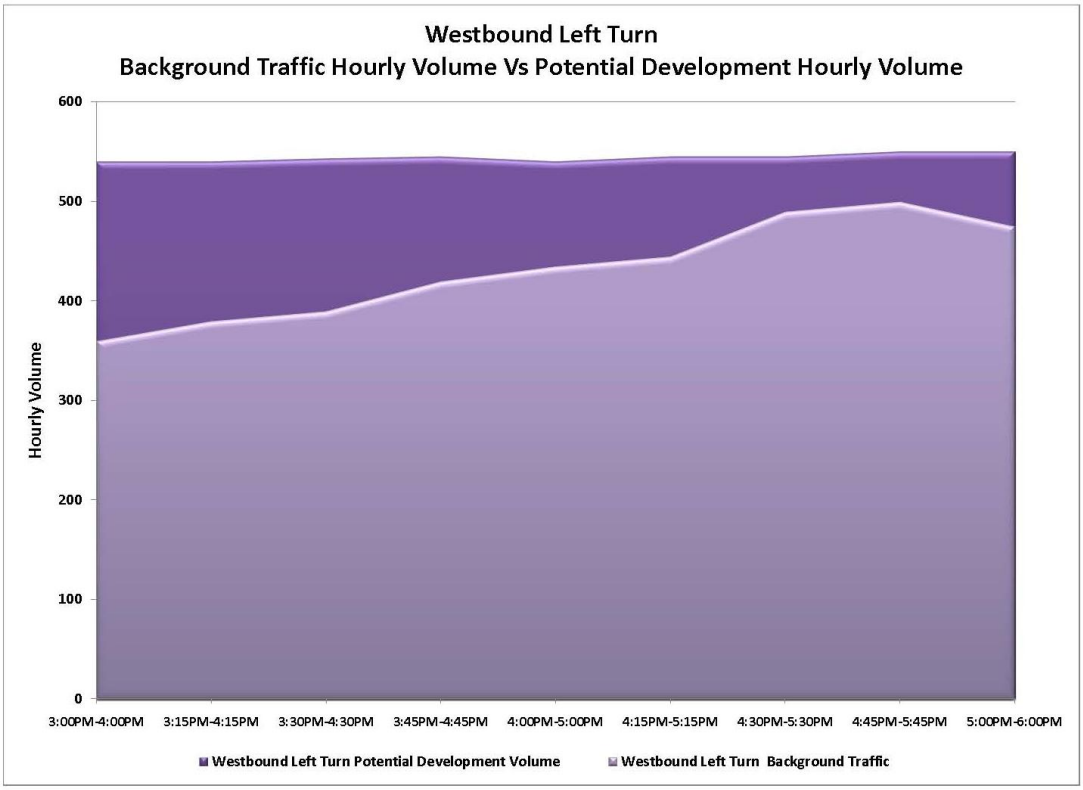
PM Peak Movements Susceptible to Severe Congestion (LOS "F" or worse):

- **westbound left onto 151 (movement most likely to become severely congested in PM peak)**
- southbound right onto westbound McKee
- westbound right onto northbound 18/151
- wastbound through on McKee

Of all of these potential points of congestion, the movement of greatest concern is the westbound left onto 18/151 in the PM peak. This movement is expected to be at LOS "D" or "E" in the peak hour if we add no new development in the planning area.

Figure 2.5 illustrates the expected hourly traffic between roughly 3:30 and 5:30 PM, just for the westbound left turn from McKee Road onto the southbound 18/151 onramp. The lower part of the graph (light purple) shows the projected volume, given background traffic growth, while the upper part of the graph (dark purple) shows the capacity for additional trips without causing this movement to degrade from LOS "E" to LOS "F". If the additional trips could be distributed ideally as shown in Figure 2.5, this movement could accommodate approximately 250 additional trips in the PM peak period of 3:30-5:30. The graph shows that most of those trips need to occur before the peak hour begins – about 4:45 PM – to avoid severe congestion consistent with LOS "F".

Figure 2.5 – Westbound Left Turns, Projected Volume and Potential Capacity, 2030 (Estimated)



In the real world it is not possible to achieve such an ideal distribution of trips. However, it is possible to push some of those trips either earlier or later than the 3:30-5:30 PM period evaluated here. For example, the Placon shift change currently occurs at 3:00 PM, allowing most outbound trips from Placon to occur before 3:30, and Sub-Zero Wolf (just south of the planning area, accessed via Commerce Park Drive) has staggered shifts with changes that occur at 1:30 and 2:00 PM. Given this possibility, we will continue to use the above estimate of 250 additional trips in the westbound left turn movement as our starting point for estimating total possible trips and building square footage possible for the Arrowhead planning area.

The next step is to estimate the total number of additional trips the system can accommodate based on how much this one movement can accommodate. We have estimated the likely inbound, AM and outbound, PM traffic distribution for the planning area, based on our understanding of the current distribution and our expectations for at least one new connection within the study area from McKee Road to the Verona Road Frontage Road. Summarized, about 35% of the PM peak traffic will depart to the north on 18/151 or the Verona Road Frontage Road, 30% will depart to the east on McKee Road, 15% will depart to the west on McKee Road, and 20% will depart to the south on 18/151. Of that portion that departs to the south on 18/151, half, or 10% of all traffic from the planning area, will use the westbound left turn movement that we have identified as our “choke point” in the whole system. If the 250 trips that this movement can accommodate at LOS “E” represent 10% of the total trips generated in the planning area, then we can add 2500 trips (250 divided by 0.1) to the PM peak period (distributed before or

after the actual system peak hour) without pushing the performance of this already-congested movement into LOS "F".

Planning for Expansion of the Fitchburg Commerce Park

The preceding analysis omitted from consideration one key source of traffic – Commerce Park Drive. Whereas the rest of the planning area is expected to have the option of utilizing the Verona Road Frontage Road to access 18/151, this is not a practical option for any traffic entering McKee Road from the south on Commerce Park Drive. For that traffic, the 20% of trips expected to go south on 18/151 must all use the westbound left movement. So, for traffic generated from Commerce Park Drive, the 250 trips that this movement can accommodate at LOS "E" represent 20% of the total trips generated from Commerce Park Drive, and we can therefore add only 1250 trips (250 divided by 0.2) to the PM peak period from this area (distributed before or after the actual system peak hour).

Because the City is projecting growth for the Fitchburg Commerce Park, and because McKee Road is likely to remain the best route to access 18/151 for the foreseeable future, we must reserve some traffic capacity for this growth. The four development scenarios assume a variety of distributions of the available traffic capacity, ranging from just 30% of the trips reserved for Commerce Park growth and 70% of the trips utilized in the Arrowhead planning area, to the reverse – 30% of trips into the Arrowhead area and 70% of the trips to the Commerce Park.

Estimating the Scale of New Development

Once we know how many trips we can generate in each area, we can use average peak hour trip generation rates provided by the Institute of Transportation Engineers ("Trip Generation", 8th Edition) to translate trips to square feet of new development.

The following tables present four scenarios, each with a different distribution of traffic to the Arrowhead planning area and the Fitchburg Commerce Park, and each with a different mix of uses in each area. It is important to note the wide variation of trip generation among the different land use types. Warehouse uses generate just 0.24 trips per 1,000 SF of building area in the peak PM hour, whereas 1,000 SF of light industrial use generates 0.85 trips, 1,000 SF of general office generates 1.24 trips, and 1,000 SF of retail or restaurant generates 4.57 trips. A review of the tables illustrates the significance of these differing rates – in theory we could plan for a great deal more warehouse and manufacturing space than office space because those uses generate fewer trips. However, when considering the spatial limitations of our planning area, there just isn't room for many significant new warehouse or manufacturing uses. They prefer single-story buildings and ample room around the building for truck access, and therefore consume land quickly.

Choosing Among Uses to Manage Traffic

Another important consideration in selecting land uses is the flexibility or inflexibility of their trip generation timing. Warehouse and manufacturing are the most flexible and accommodating to traffic constraints because they often operate using multiple shifts and they can adjust the timing of those shifts per the limitations of the local traffic network, as Placon and Sub-Zero

Wolf already do. Office uses are more difficult to manipulate in this way, due to the common practice and expectation that the typical workday will start sometime between 7 and 9 AM and end between 4 and 6 PM. Office uses in the planning area should be encouraged to utilize the earlier portions of these typical ranges. Retail and restaurant trip generation is most difficult to manipulate, as their traffic patterns are largely customer-driven. We are recommending only a few such uses, and we believe that we are overestimating their trip generation rates relative to the McKee Road – 18/151 interchange, as many of their customers will be pass-by traffic already planning to use the interchange.

Capacity for Growth – Parking

One of the limiting factors on the ability to accommodate significant new infill growth is parking requirements. If we assume, for initial concept development, the use of standard parking ratios for new uses in the planning area, then we are providing between 0.7 parking spaces (warehouse uses) and 7.0 parking space (restaurant uses) per 1,000 SF of space. In the lower-density scenarios this parking is shown as all surface parking, and there are only a few multi-story buildings, none taller than two stories. The higher-density scenarios propose more multi-story office uses, up to three stories, and these require structured parking (parking ramps) to accommodate the projected parking demand.

One method to reduce parking demand is through the use of shared parking. In a few places we are proposing either surface lots or parking structures that could be municipal parking that businesses or employees pay to use.

A key concern with the scenario that incorporates parking structures is the cost-viability of those structures. As indicated in a 2006 report, *Parking Matters: Designing, Operating and Financing Structured Parking in Smart Growth Communities*, structured parking becomes cost-effective when land values reach $30/SF ($1.3M/acre). By comparison, the highest land value in the Arrowhead planning area is currently priced at just under $10/SF, this for the General Beverage site at the McKee Road – 18/151 intersection. This fact indicates that structured parking will likely only occur with public funding assistance.

Preliminary Development Scenarios

The four preliminary development scenarios were shared with City staff and with business owners in the planning area on August 3. Many provided written comments considered at an August 8 meeting with staff. Based on these comments and staff discussiion, the initial drafts were revised in a few ways, including elimination of most retail uses, inclusion of ideas for the expansion of both General Beverage and Midwest Decorative Stone, and clarifications to the map. Also, staff identified a preferred street network – Alternative 3.
Staff has indicated no preference at this point with regard to the density and intensity of uses, and is seeking input on that question from Plan Commission.

General Notes about the Development Scenarios

1) The road configurations and development options proposed are interchangeable – any of the road configurations could accommodate any of the density alternatives.
2) The road configurations themselves can be mixed and matched, reduced, or their construction phased in various combinations. We believe that the priority connection is from McKee Road at the current Thermo Fisher driveway to the cul-de-sac at the south end of the Verona Road frontage road, between Certco and Saris, while other connections are secondary and could either be delayed or eliminated altogether.
3) In every scenario the crossing of the Cannonball Trail bike path behind Placon and Certco is a grade-separated bridge, and the next crossing to the north is an at-grade crossing.
4) All of the roadways are shown simply as right-of-way in these drafts, and all are 80 feet wide, which is the City's standard for collector streets. All curve radii are 333 feet or greater, consistent with a posted speed limit of 25 MPH.
5) The mixes and densities of uses in these scenarios is loosely based on an analysis of traffic capacity and choices about how much capacity should be reserved for growth of the Fitchburg Commerce Park south of the planning area. For a full description of our traffic capacity analysis, see the "Capacity for Growth – Traffic Constraints" section.
6) In a few cases the scenarios displace existing businesses, including Harder Corp. in Alternatives 3 and 4 (to extend a new road), and several small businesses leasing space at 6140 Cottonwood Drive in Alternative 1 (to expand Midwest Decorative Stone). In each case the City would seek to relocate these uses within the planning area. The development scenarios provide adequate space for these uses but do not specifically identify relocation sites.

Arrowhead Scenario 1 – Low density

Trip Generation and Square Footage of New/Expanded Uses

	Peak Period Trips	Peak Hour Outbound Trip Generation Ratio (trips/1,000 SF)	Square Feet
Arrowhead Scenario 1: Low Density	**1470**		2,180,000
Arrowhead Planning Area - Total Trip Alottment - 30% (up to 750 trips)	595		660,000
Light Industrial	160	0.85	190,000
Office	400	1.24	320,000
Warehouse	35	0.24	150,000
Future Commerce Park Expansion - Total Trip Alottment - 70% (up to 875 trips)	875		1,520,000
Light Industrial	400	0.85	470,000
Office	275	1.24	220,000
Warehouse	200	0.24	830,000

Scenario 1 Advantages

- Utilizes existing alignment of Thermo Fisher driveway as much as possible
- Provides for the extension of Williamsburg Way
- Route of new road between Certco and Saris preserves current location of Harder Corp.
- Reroutes the Cannonball Trail around the west side of General Beverage, allowing for parking and loading in the current trail ROW.
- Expands Midwest Decorative Stone with purchase of neighboring parcel to east on Cottonwood Drive, providing more office and parking space
- Least impact on Pineway Trail neighborhood

Scenario 1 Disadvantages

- Does not provide a site large enough for a new Thermo Fisher facility
- Does not connect to or utilize the Thermo Fisher land east of the Badger State Trail
- Disruption of the Arrowhead Park stormwater pond
- The proposed road connecting to Williamsburg Way will be steep along the north edge of the current Themro Fisher campus, and it will likely require that the intersection where this roads meets the Verona Road frontage road will need to be lowered several feet
- Route of new road between Certco and Saris obstructs Certco expansion more than other alternatives and leaves a strip of land to the north not all that useful to either company
- Moves Midwest Decorative Stone office to Cottonwood Drive, consolidates direct access from McKee for General Beverage and Midwest Decorative Stone to one shared, right-in-right-out driveway east of the Cannonball trail crossing

Scenario 1 – New Development By Site – Building and Parking Allocations

							PARKING NEEDS		PARKING PROVIDED	
Site	Business	Land Use	Spaces / k sq.ft.	Building Footprint	# of Stories	Building (sqft)	# of Spaces	Total Area*	Total Area	# of Spaces*
#1	NEW BUSINESS	Suburban Office	3.6	22,500	3	67,500	243	97,200	22,500	
	NEW BUSINESS	Suburban Office	3.6	30,000	2	60,000	216	86,400	160,000	
						127,500	**459**	**183,600**	**182,500**	**456**
#2	NEW BUSINESS	Suburban Office	3.6	7,000	1	7,000	25	10,080	16,250	
	NEW BUSINESS	Manufacturing	1.5	43,000	1	43,000	65	25,800	26,000	
						50,000	**90**	**35,880**	**42,250**	**106**
#3	NEW BUSINESS	Fire Station			2	0	0	0		
						0	**0**	**0**		**0**
#4	NEW BUSINESS	Suburban Office	3.6	10,000	3	30,000	108	43,200	42,700	
						30,000	**108**	**43,200**	**42,700**	**107**
#5	REUSE BLDG	Suburban Office	3.6	30,000	2	60,000	216	86,400	83,125	
						60,000	**216**	**86,400**	**83,125**	**208**
#6	NEW BUSINESS	Suburban Office	3.6	6,400	1	6,400	23	9,216		
	NEW BUSINESS	Manufacturing	1.5	45,000	1	45,000	68	27,000		
						51,400	**91**	**36,216**	**52,500**	**131**
#7	Saris	Suburban Office	3.6	18,750	1	18,750	68	27,000	26,000	
	Saris	Manufacturing	1.5	31,250	1	31,250	47	18,750	16,000	
						50,000	**114**	**45,750**	**42,000**	**105**
#8	Certco	Warehouse	0.7	120,000	1	120,000	84	33,600	36,600	
						120,000	**84**	**33,600**	**36,600**	**92**
#9	NEW BUSINESS	Suburban Office	3.6	6,000	2	12,000	43	17,280	39,000	
	NEW BUSINESS	Manufacturing	1.5	39,000	1	39,000	59	23,400		
						51,000	**102**	**40,680**	**39,000**	**98**
#10	NEW BUSINESS	Suburban Office	3.6	15,000	2	30,000	108	43,200	56,000	
	NEW BUSINESS	Manufacturing	1.5	30,000	1	30,000	45	18,000	7,800	
						60,000	**153**	**61,200**	**63,800**	**160**
#11	United Vaccines	Suburban Office	3.6	4,500	2	9,000	32	12,960		
						9,000	**32**	**12,960**	**0**	**0**
#12	Madison Landsc	Suburban Office	3.6	2,000	2	4,000	14	5,760	6,000	
						4,000	**14**	**5,760**	**6,000**	**15**
#13	General Beverag	Suburban Office	3.6	12,000	1	12,000	43	17,280	21,500	
	General Beverag	Warehouse	0.7	34,000	1	34,000	24	9,520	13,000	
						46,000	**67**	**26,800**	**34,500**	**86**

** Assumes 400 sq.ft. per space*

Arrowhead Scenario 2 – Low-Medium Density

Trip Generation and Square Footage of New/Expanded Uses

	Peak Period Trips	Peak Hour Outbound Trip Generation Ratio (trips/1,000 SF)	Square Feet
Arrowhead Scenario 2: Medium-Low Density	**1468**		2,230,000
Arrowhead Planning Area - Total Trip Alottment - 40% (up to 1000 trips)	718		810,000
Light Industrial	260	0.85	310,000
Office	420	1.24	340,000
Warehouse	38	0.24	160,000
Future Commerce Park Expansion - Total Trip Alottment - 60% (up to 750 trips)	750		1,420,000
Light Industrial	400	0.85	470,000
Office	150	1.24	120,000
Warehouse	200	0.24	830,000

Scenario 2 Advantages

- Temporary cul-de-sac at end of new road between Certco and Saris preserves Harder Corp. at this location for now
- Least significant disruption of Arrowhead Park stormwater pond while still providing for extension of Williamsburg Way
- Allows for the adaptive reuse of the empty office building as part of the new Thermo Fisher facility

Scenario 2 Disadvantages

- Northern, at-grade crossing of Cannonball trail crosses at a sharp angle, which is less than ideal
- Does not resolve General Beverage or Midwest Decorative Stone expansion interests
- The street extension to the east edge of planning area, east of the Badger State Trail, is not likely to be extending to Seminole Highway through Dane County land, and it exceeds the City's 600' limit on cul-de-sacs
- The proposed road connecting to Williamsburg Way will be steep along the north edge of the current Themro Fisher campus, and it will likely require that the intersection where this roads meets the Verona Road frontage road will need to be lowered several feet

Scenario 2 – New Development By Site – Building and Parking Allocations

							PARKING NEEDS		PARKING PROVIDED	
Site	Business	Land Use	Spaces / k sq.ft.	Building Footprint	# of Stories	Building (sqft)	# of Spaces	Total Area*	Total Area	# of Spaces*
#1	NEW BUSINESS	Suburban Office	3.6	7,500	2	15,000	54	21,600	16,800	42
	NEW BUSINESS	Manufacturing	1.5	54,000	1	54,000	81	32,400	38,000	95
						69,000	**135**	**54,000**	**54,800**	**137**
#2	Thermo Fisher	Suburban Office	3.6	60,000	2	120,000	432	172,800	191,400	479
	Thermo Fisher	Manufacturing	1.5	150,000	1	150,000	225	90,000	90,000	225
						270,000	**657**	**262,800**	**52,500**	**704**
#3	NEW BUSINESS	Suburban Office	3.6	36,000	3	108,000	389	155,520	150,000	375
						108,000	**389**	**155,520**	**150,000**	**375**
#4	NEW BUSINESS	Suburban Office	3.6	20,000	2	40,000	144	57,600	51,000	128
	NEW BUSINESS	Suburban Office	3.6	20,000	2	40,000	144	57,600	87,400	219
	NEW BUSINESS	Suburban Office	3.6	20,000	2	40,000	144	57,600	25,300	63
						120,000	**432**	**172,800**	**163,700**	**409**
#5	RESERVED (PLACON)					0	0	0		
						0	**0**	**0**	**0**	**0**
#6	Fire Station	Public			2	0	0	0		0
						0	**0**	**0**	**0**	**0**
#7	Saris	Suburban Office	3.6	18,750	1	18,750	68	27,000	26,000	
	Saris	Manufacturing	1.5	31,250	1	31,250	47	18,750	16,000	
						50,000	**114**	**45,750**	**42,000**	**105**
#8	Certco	Warehouse	0.7	125,000	1	125,000	88	35,000	32,300	
						125,000	**88**	**35,000**	**32,300**	**81**
#9	NEW BUSINESS	Suburban Office	3.6	6,000	2	12,000	43	17,280	39,000	
	NEW BUSINESS	Manufacturing	1.5	39,000	1	39,000	59	23,400		
						51,000	**102**	**40,680**	**39,000**	**98**
#10	NEW BUSINESS	Suburban Office	3.6	15,000	2	30,000	108	43,200	56,000	
	NEW BUSINESS	Manufacturing	1.5	30,000	1	30,000	45	18,000	7,800	
						60,000	**153**	**61,200**	**63,800**	**160**
#11	United Vaccines	Suburban Office	3.6	4,500	2	9,000	32	12,960		
						9,000	**32**	**12,960**	**0**	**0**
#12	Madison Landsc	Suburban Office	3.6	1,200	2	2,400	9	3,456	1,620	
						2,400	**9**	**3,456**	**1,620**	**4**
#13	General Beverag	Suburban Office	3.6	12,000	1	12,000	43	17,280	24,600	
	General Beverag	Warehouse	0.7	34,000	1	34,000	24	9,520	3,500	
						46,000	**67**	**26,800**	**28,100**	**70**

** Assumes 400 sq.ft. per space*

Arrowhead Scenario 3 – Medium-High Density

Scenario 3 Trip Generation and Square Footage of New/Expanded Uses

	Peak Period Trips	Peak Hour Outbound Trip Generation Ratio (trips/1,000 SF)	Square Feet
Arrowhead Scenario 3: Medium-High Density	**1560**		2,110,000
Arrowhead Planning Area - Total Trip Alottment - 50% (up to 1250 trips)	935		1,010,000
Light Industrial	315	0.85	370,000
Office	580	1.24	470,000
Warehouse	40	0.24	170,000
Future Commerce Park Expansion - Total Trip Alottment - 50% (up to 625 trips)	625		1,100,000
Light Industrial	250	0.85	290,000
Office	225	1.24	180,000
Warehouse	150	0.24	630,000

Scenario 3 Advantages

- Provides for the extension of Williamsburg Way
- Provides some use of land east of the Badger state Trail, while providing a conservancy buffer adjacent to the Pineway Trail neighborhood
- Reroutes the Cannonball Trail along the east side of Midwest Decorative Stone, allowing for General Beverage parking and loading, and some Midwest Decorative Stone parking, in the current trail ROW

Scenario 3 Disadvantages

- Most significant disruption of Arrowhead Park stormwater pond
- The proposed road connecting to Williamsburg Way will be steep along the north edge of the current Thermo Fisher campus, and it will likely require that the intersection where this roads meets the Verona Road frontage road will need to be lowered several feet
- Requires relocation of Harder Corp.
- Requires a new driveway access onto McKee Road east of the Badger State Trail
- Consolidates direct access from McKee for General Beverage *and* Midwest Decorative Stone to one shared, right-in-right-out driveway west of the Cannonball trail crossing, takes 30+ feet from east edge of Midwest Decorative Stone, eliminating their internal driveway in that strip

Scenario 3 – New Development By Site – Building and Parking Allocations

							PARKING NEEDS		PARKING PROVIDED	
Site	Business	Land Use	Spaces / k sq.ft.	Building Footprint	# of Stories	Building (sqft)	# of Spaces	Total Area*	Total Area	# of Spaces*
#1	NEW BUSINESS	Suburban Office	3.6	7,000	1	7,000	25	10,080	15,800	40
	NEW BUSINESS	Manufacturing	1.5	42,000	1	42,000	63	25,200	24,325	61
						49,000	**88**	**35,280**	**40,125**	**100**
#2	NEW BUSINESS	Suburban Office	3.6	7,500	2	15,000	54	21,600	16,250	41
	NEW BUSINESS	Manufacturing	1.5	30,000	1	30,000	45	18,000	26,000	65
						45,000	**99**	**39,600**	**42,250**	**106**
#3	Thermo Fisher	Suburban Office	3.6	60,000	2	120,000	432	172,800	136,900	342
	Thermo Fisher	Manufacturing	1.5	150,000	1	150,000	225	90,000	123,400	309
						270,000	**657**	**262,800**	**52,500**	**651**
#4	Fire Station	Public			2	0	0	0		0
						0	**0**	**0**	**0**	**0**
#5	NEW BUSINESS	Suburban Office	3.6	10,000	3	30,000	108	43,200	42,700	
						30,000	**108**	**43,200**	**42,700**	**107**
#6	NEW BUSINESS	Suburban Office	3.6	10,000	1	10,000	36	14,400		0
	NEW BUSINESS	Manufacturing	1.5	61,200	1	61,200	92	36,720		0
						71,200	**128**	**51,120**	**52,500**	**131**
#7	Saris	Suburban Office	3.6	22,800	1	22,800	82	32,832	44,100	110
	Saris	Warehouse	0.7	13,300	1	13,300				0
	Saris	Manufacturing	1.5	82,000	1	82,000	123	49,200	40,400	101
						118,100	**205**	**82,032**	**84,500**	**211**
#8	Certco	Warehouse	0.7	125,000	1	125,000	88	35,000	39,000	
						125,000	**88**	**35,000**	**39,000**	**98**
#9	NEW BUSINESS	Suburban Office	3.6	15,000	2	30,000	108	43,200	173,600	434
	NEW BUSINESS	Suburban Office	3.6	35,000	3	105,000	378	151,200	26,700	67
						135,000	**486**	**194,400**	**200,300**	**501**
#10	NEW BUSINESS	Suburban Office	3.6	12,800	2	25,600	92	36,864	144,500	361
	NEW BUSINESS	Suburban Office	3.6	28,000	3	84,000	302	120,960	22,800	57
						109,600	**395**	**157,824**	**167,300**	**418**
#11	United Vaccines	Suburban Office	3.6	4,500	2	9,000	32	12,960		0
						9,000	**32**	**12,960**	**0**	**0**
#12	Madison Landsc	Suburban Office	3.6	1,200	2	2,400	9	3,456	1,620	4
						2,400	**9**	**3,456**	**1,620**	**4**
#13	General Beverag	Suburban Office	3.6	12,000	1	12,000	43	17,280	7,000	18
	General Beverag	Warehouse	0.7	34,000	1	34,000	24	9,520	22,000	55
						46,000	**67**	**26,800**	**29,000**	**73**

** Assumes 400 sq.ft. per space*

Arrowhead Scenario 4 – High Density

Trip Generation and Square Footage of New/Expanded Uses

	Peak Period Trips	Peak Hour Outbound Trip Generation Ratio (trips/1,000 SF)	Square Feet
Arrowhead Scenario 4: High Density	**1752**		2,090,000
Arrowhead Planning Area - Total Trip Alottment - 70% (up to 1750 trips)	1377		1,480,000
Light Industrial	90	0.85	110,000
Office	1215	1.24	980,000
Warehouse	40	0.24	170,000
Residential	32	0.5 trips per unit	220,000
Future Commerce Park Expansion - Total Trip Alottment - 30% (up to 375 trips)	375		610,000
Light Industrial	150	0.85	180,000
Office	150	1.24	120,000
Warehouse	75	0.24	310,000

Scenario 4 Advantages

- Utilizes existing alignment of Thermo Fisher driveway as much as possible
- Allows for the adaptive reuse of the empty office building as part of the new Thermo Fisher facility

Scenario 4 Disadvantages

- Does not provide for the extension of Williamsburg Way
- Extension of Commerce Park Drive through ADM property is likely too disruptive to ADM functions to be feasible.
- Extension of Commerce Park Drive will bring more traffic to McKee Road from the north and limit capacity for traffic growth from the south for future Fitchburg Commerce Park expansion.
- The street extension to the east edge of planning area, east of the Badger State Trail, is not likely to be extending to Seminole Highway through Dane County land, and it exceeds the City's 600' limit on cul-de-sacs
- Requires relocation of Harder Corp.
- Significant office space will be more likely to add to peak hour traffic, compared to other uses

Scenario 4 – New Development By Site – Building and Parking Allocations

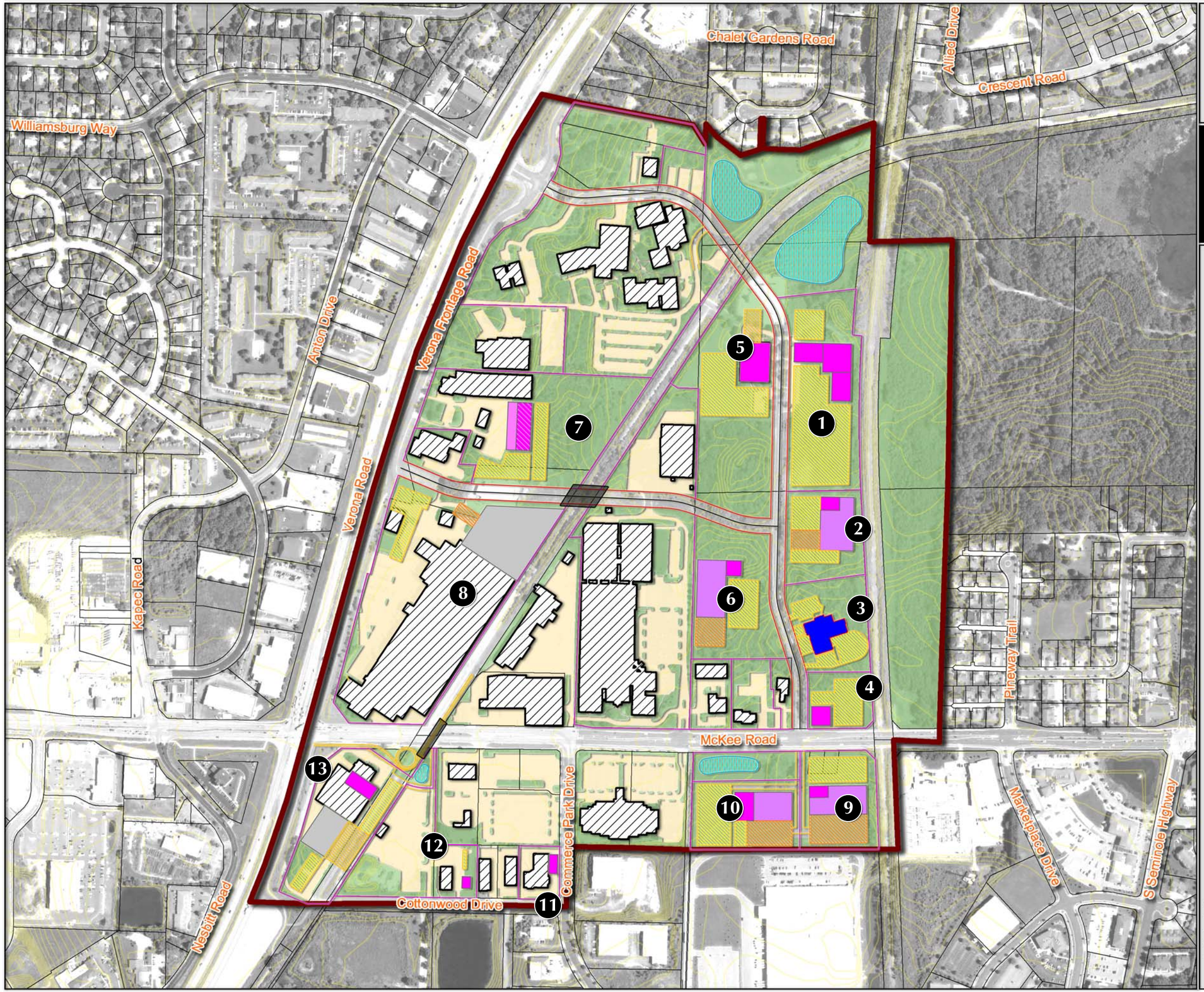
							PARKING NEEDS		PARKING PROVIDED	
Site	Business	Land Use	Spaces / k sq.ft.	Building Footprint	# of Stories	Building (sqft)	# of Spaces	Total Area*	Total Area	# of Spaces*
#1	NEW BUSINESS	Suburban Office	3.6	17,000	3	51,000	184	73,440	75,200	188
						51,000	**184**	**73,440**	**75,200**	**188**
#2	NEW RESIDENTIA	Multi-Family Res.	---	26,400	3	79,200				
						79,200				
#3	NEW RESIDENTIA	Townhomes	---	71,800	2	143,600				
						143,600				
#4	Thermo Fisher	Suburban Office	3.6	60,000	2	120,000	432	172,800	210,100	525
	Thermo Fisher	Manufacturing	1.5	150,000	1	150,000	225	90,000	55,000	138
						270,000	**657**	**262,800**	**265,100**	**663**
#5	NEW BUSINESS	Suburban Office	3.6	25,600	2	51,200	184	73,728	167,400	419
	NEW BUSINESS	Suburban Office	3.6	36,800	2	73,600	265	105,984	17,500	44
						124,800	**449**	**179,712**	**184,900**	**462**
#6	NEW BUSINESS	Suburban Office	3.6	10,000	3	30,000	108	43,200	46,000	115
						30,000	**108**	**43,200**	**46,000**	**115**
#7	NEW BUSINESS	Suburban Office	3.6	11,250	3	33,750	122	48,600	42,400	106
						33,750	**122**	**48,600**	**42,400**	**106**
#8	NEW BUSINESS	Suburban Office	3.6	11,250	2	22,500	81	32,400	34,500	86
						22,500	**81**	**32,400**	**34,500**	**86**
#9	Fire Station	Public	---	30,000	2	60,000				
						60,000				
#10	Charter	Suburban Office	3.6	17,250	2	34,500	124	49,680	50,900	127
						34,500	**124**	**49,680**	**50,900**	**127**
#11	Saris	Suburban Office	3.6	14,000	1	14,000	50	20,160	26,000	65
	Saris	Warehouse	0.7	5,000	1	5,000	10	3,920		0
	Saris	Manufacturing	1.5	31,000	1	31,000	47	18,600	22,800	57
						50,000	**107**	**42,680**	**48,800**	**122**
#12	Certco	Warehouse	0.7	125,000	1	125,000	88	35,000	38,000	
						125,000	**88**	**35,000**	**38,000**	**95**
#13	NEW BUSINESS	Suburban Office	3.6	15,000	3	45,000	162	64,800	145,600	364
	NEW BUSINESS	Suburban Office	3.6	35,000	2	70,000	252	100,800	31,200	78
						115,000	**414**	**165,600**	**176,800**	**442**
#14	AMC	(parking garage)	3.6			0	0	0	145,600	364
						0	**0**	**0**	**145,600**	**364**
#15	NEW BUSINESS	Suburban Office	3.6	12,800	2	25,600	92	36,864	144,500	361
	NEW BUSINESS	Suburban Office	3.6	28,000	3	84,000	302	120,960	22,800	57
						109,600	**395**	**157,824**	**167,300**	**418**
#16	United Vaccines	Suburban Office	3.6	4,500	2	9,000	32	12,960		
						9,000	**32**	**12,960**	**0**	**0**
#17	Madison Landsc	Suburban Office	3.6	1,200	2	2,400	9	3,456	1,620	4
						2,400	**9**	**3,456**	**1,620**	**4**
#18	General Beverag	Suburban Office	3.6	12,000	1	12,000	43	17,280	24,600	62
	General Beverag	Warehouse	0.7	34,000	1	34,000	24	9,520	3,500	9
						46,000	**67**	**26,800**	**28,100**	**70**

** Assumes 400 sq.ft. per space*

Arrowhead
Redevelopment Project

City of Fitchburg
Dane County, Wisconsin

Alternative One
Conceptual Plan



LEGEND

EXISTING
- Parcels
- Building Footprints
- Pervious Areas
- Impervious Areas

PROPOSED
- Parcels
- Parking-Surface
- Parking-Two Level
- Parking Ramp
- Loading Area
- Stormwater Management
- Bridge

PROPOSED DEVELOPMENT *(land uses)*
- Warehouse
- Manufacturing
- Office
- Public

N

Feet
0 500 1,000

Sources:
- Base data provided by Dane Co. LIO
- Dane Co. RPC Environ. Corridors - Wetlands
- Impervous areas provided by the City
- 2010 NAIP Ortho provided by USDA

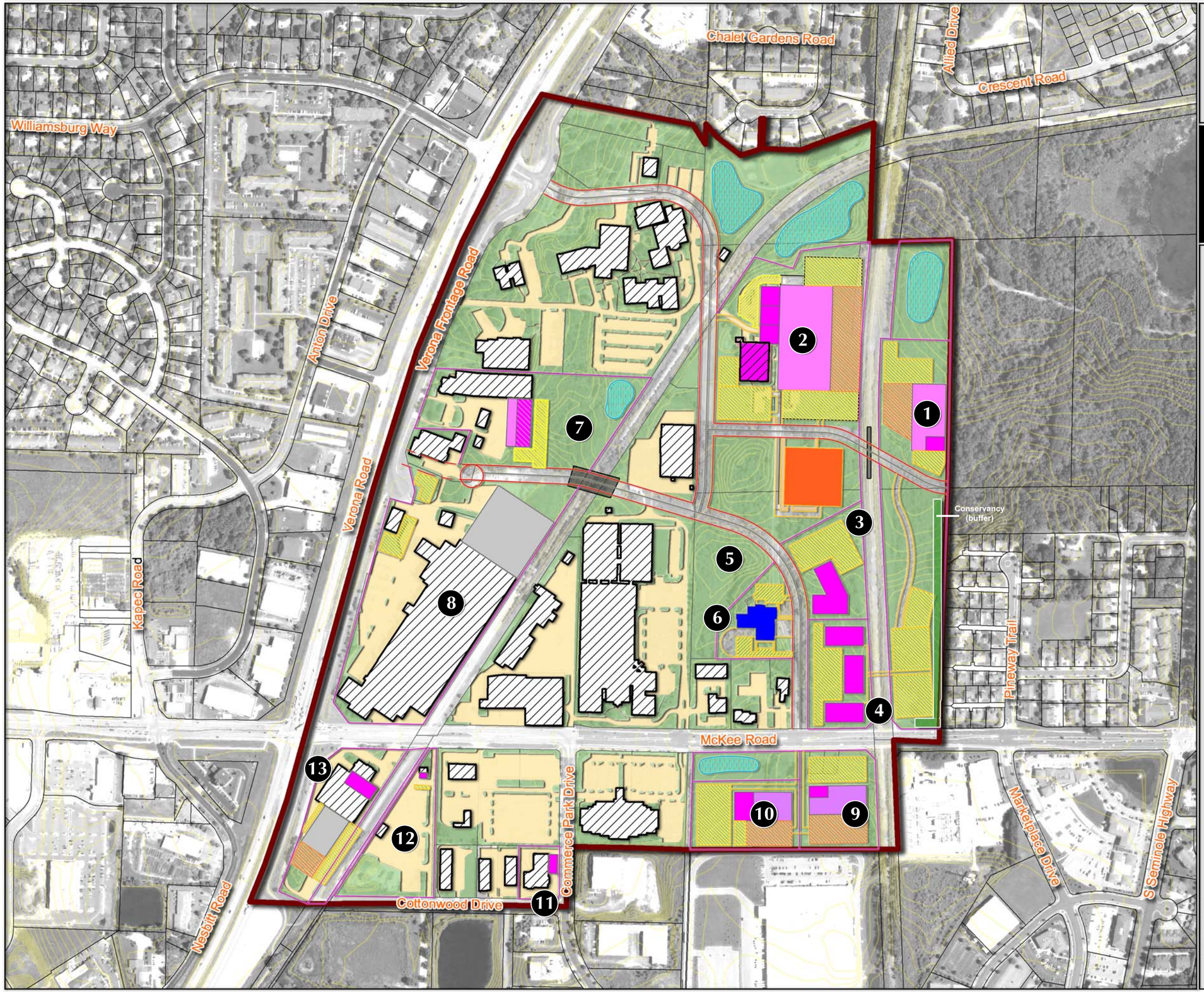
Date: 08-09-11

MSA PROFESSIONAL SERVICES

Arrowhead
Redevelopment Project

City of Fitchburg
Dane County, Wisconsin

Alternative Two
Conceptual Plan



LEGEND

EXISTING
- Parcels
- Building Footprints
- Pervious Areas
- Impervious Areas

PROPOSED
- Parcels
- Parking-Surface
- Parking-Two Level
- Parking Ramp
- Loading Area
- Stormwater Management
- Bridge

PROPOSED DEVELOPMENT *(land uses)*
- Warehouse
- Manufacturing
- Office
- Public

N

Feet

0 500 1,000

Sources:
- Base data provided by Dane Co. LIO
- Dane Co. RPC Environ. Corridors - Wetlands
- Impervous areas provided by the City
- 2010 NAIP Ortho provided by USDA

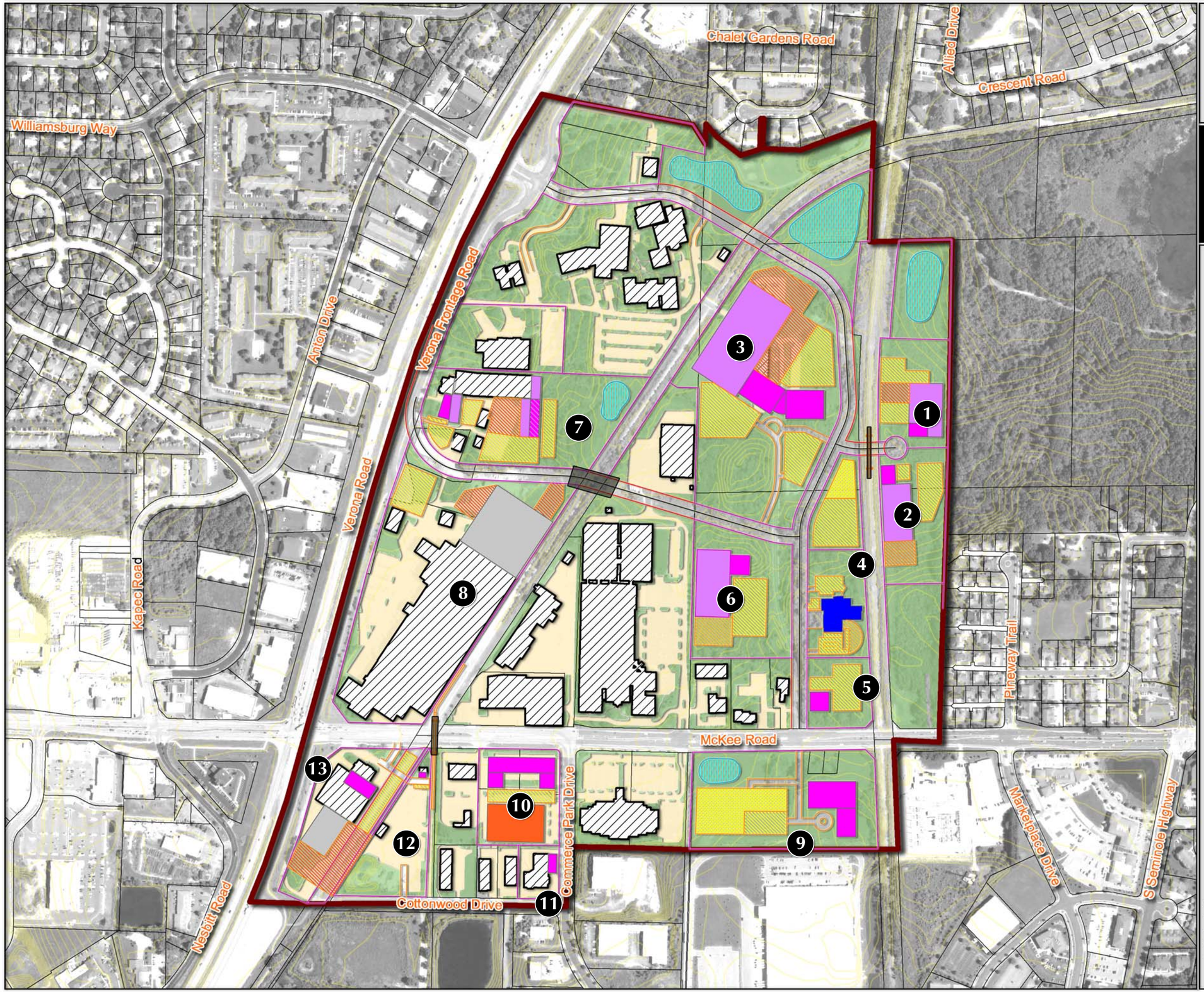
Date: 08-09-11

MSA PROFESSIONAL SERVICES

Arrowhead
Redevelopment Project

City of Fitchburg
Dane County, Wisconsin

Alternative Three
Conceptual Plan



LEGEND

EXISTING
- Parcels
- Building Footprints
- Pervious Areas
- Impervious Areas

PROPOSED
- Parcels
- Parking-Surface
- Parking-Two Level
- Parking Ramp
- Loading Area
- Stormwater Management
- Bridge

PROPOSED DEVELOPMENT *(land uses)*
- Warehouse
- Manufacturing
- Office
- Public

Feet
0 500 1,000

Sources:
- Base data provided by Dane Co. LIO
- Dane Co. RPC Environ. Corridors - Wetlands
- Impervous areas provided by the City
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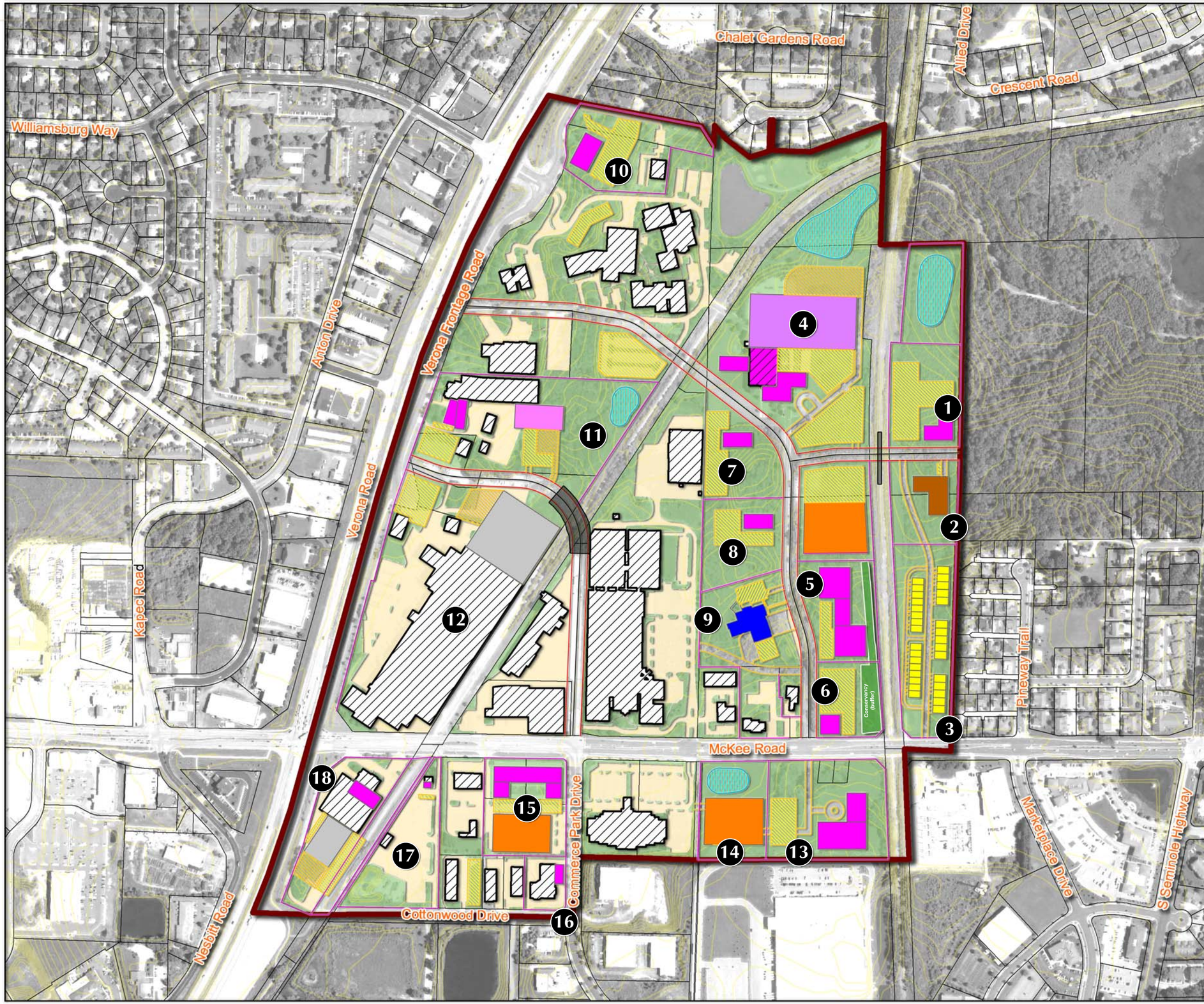
Date: 08-09-11

MSA PROFESSIONAL SERVICES

Arrowhead
Redevelopment Project

City of Fitchburg
Dane County, Wisconsin

Alternative Four
Conceptual Plan



LEGEND

EXISTING
- Parcels
- Building Footprints
- Pervious Areas
- Impervious Areas

PROPOSED
- Parcels
- Parking-Surface
- Parking-Two Level
- Parking Ramp
- Loading Area
- Stormwater Management
- Bridge

PROPOSED DEVELOPMENT *(land uses)*
- Warehouse
- Manufacturing
- Office
- Public
- Townhomes
- Multi-Family Res

Feet
0 500 1,000

Sources:
- Base data provided by Dane Co. LIO
- Dane Co. RPC Environ. Corridors - Wetlands
- Impervous areas provided by the City
- 2010 NAIP Ortho provided by USDA

Date: 08-09-11

MSA PROFESSIONAL SERVICES