

Wake Up, Washtenaw!



The Wake Up Washtenaw

“White Paper”

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1. Overview

Wake Up Washtenaw is a non-profit citizens' organization encouraging sustainable, transit-oriented development by private groups in Washtenaw County.

- We encourage **sustainable** development that is carbon-neutral, and when possible, is able to provide basic food needs and take care of its own waste stream.
- We encourage **walkable, transit-oriented** development that enables residents to get to their jobs, shopping, recreation and worship without the need for privately owned vehicles.
- We encourage development by a consortium or similar group of **private** businesses and residents, rather than depending on public funding.
- **Now is the time** to begin: a low point in the economic cycle is a good time for planning new projects and investing in the necessary resources. In addition, the certainty of climate change and the limits of fossil fuels have brought public awareness to an all-time high.

It's not enough for citizens to wait for "them" to do something about our changing needs. It is necessary for all of us to work together to make sustainable living possible – and profitable.

2. Background

Climate change. High cost of energy. Growing congestion. Michigan's plummeting economy.

How can we solve all these problems?

The answer lies in taking world-class methods and applying them with American ingenuity and know-how. The place to start? Right here in Washtenaw County.

There are many groups working on these problems: climate, energy, congestion, the economy. What we need is to get all these groups working together.

The key to all these problems is to build *sustainable, transit-oriented communities*. **Sustainability** requires minimum dependence on outside resources, including food, energy, and waste management. We have the technology to build sustainable communities; what we have lacked is the collective will to do it. We are now coming to realize the need for sustainability, and with that realization comes a growing will to act. There is a realization that we have become dependent on

food grown thousands of miles from us, and low-cost transportation will not be available indefinitely. We all know that heating and cooling costs are spiraling out of control, and we need to find alternatives to fossil fuels if we want to continue to live comfortably.

Why transit-oriented? Because transportation is the largest single factor determining how populations settle and build communities. Civilization as we know it depends on being able to move people and goods around. The latter half of the twentieth century in the United States based almost all its transportation and settlement patterns on highways. Individuals gained freedom of movement by owning personal automobiles, and distributors of goods gained flexibility by using large trucks.

This was successful and liberating – as long as (1) fuel was inexpensive, (2) the number of vehicles did not exceed the capacity of the highway system, and (3) a significant proportion of the population was able to afford private vehicles. But each of these three conditions is now seriously challenged. Twenty-eight percent of energy expended in the United States in 2008 was used to move people and goods around. Privately owned vehicles (cars and light trucks) used half of all transportation energy¹, and demand an increasing share of personal and community resources.

Though *effective* at providing flexible transportation, privately owned vehicles are *not efficient* for moving large numbers of people. We need communities built for convenient walking and accessible to efficient transportation, in order to free us from dependence on fossil fuels, reduce greenhouse gas emissions, and turn around the economy.

But...

They say it can't be done: "Michigan's history and spirit is too deeply rooted in the private automobile." "We can never expect Michiganders to embrace any solution that isn't based on cars."

They say it can't be done: "Michigan's politicians and developers are too happy making money from the status quo." "They'll never be proactive enough to invest in new solutions."

We say, it *must* be done. Future generations of Michigan residents will be trapped in poverty and unsustainable communities if we don't act now.

One extremely valuable and insightful guide is **Michigan Future's Progress Report:**²

To us the clear message from the data we have just reviewed is the key to economic growth is *talent*. Quite simply, in a flattening world, economic development priority one is to prepare, retain and attract talent.

There are no quick fixes, the Michigan economy is going to continue to lag the nation for the foreseeable future. But there is a path back to high prosperity. As is laid out in our *New Agenda* report³, we believe the framework for action is:

- Building a culture aligned with (rather than resisting) the realities of a flattening world. We need to far more highly value learning, an entrepreneurial spirit and being welcoming to all.
- Creating places where talent – particularly mobile young talent – wants to live. This means expanded public investments in quality of place with an emphasis on vibrant central city neighborhoods.
- Ensuring the long-term success of a vibrant and agile higher education system. This means increasing public investments in higher education. Our higher education institutions – particularly the major research institutions – are the most important assets we have to develop the concentration of talent needed in a knowledge-based economy.

- Transforming teaching and learning so that it is aligned with the realities of a flattening world. All of education needs reinvention. Most important is to substantially increase the proportion of students who leave high school academically ready for higher education.
- Developing new public and, most importantly, private sector leadership that has moved beyond both a desire to recreate the old economy as well as the old fights. A leadership that is clearly focused, at both the state and regional level, on preparing, retaining and attracting talent so that we can prosper in the global economy.

What does talent have to do with sustainable development? In a word, everything. Talented young people are very aware of the crisis looming over our world's climate and our American way of life. They are attracted to innovative solutions to these problems, and eager to lend a hand to make them work. Communities that are built to address these problems are vitally interesting to them; on the other hand, regions that lag behind and cling to old, unsustainable models repel talented young people.

Our American values have long held that responsibility for improving our children's education lies primarily in the public sector. At the same time, American values have put community development in the private sector, though with oversight from the public. While the public sector focuses on retaining and improving Michigan's educational advantages, the private sector should be empowered and encouraged to develop communities that attract talented, mobile young people.

Wake Up Washtenaw sees its role as (1) empowering responsible development through community action to revise our land use policies, and (2) inviting and encouraging responsible developers and Michigan citizens to invest in sustainable development.

3. Goals

What do we want a sustainable community to be like?

We are not advocating a bare-bones, spartan existence. The type of communities we envision would be relaxing and welcoming, at the same time offering vibrant life-style options. This is both possible and sustainable when communities are built to conserve energy from the ground up – for example, conforming to the highest LEEDS standards⁴. Such communities can generate most or all of their own energy by utilizing the sun, the wind, water, geothermal and biological sources, and even its own waste products – depending, of course, on the availability of resources where the community is located.

The layout and the buildings themselves would be designed for esthetically pleasing effect, including green space both within and around built-up areas; space for sports, recreation, wildlife, and just old-fashioned relaxation.

One major vulnerability of our current food supply is our dependence on food grown thousands of miles away and transported to us using fossil fuels. Sustainable communities can break this dependence by planning to include space for growing food locally. The obvious foods to grow are vegetables that are both nourishing and well-suited to our Michigan climate. Innovative building designs also make it possible to grow indoors more exotic foods not suited to our harsh winters, while at the same time improving indoor air quality. A further option for communities with sufficient land would be a dairy herd, producing not only milk and dairy products, but also converting grass into fertilizer for vegetable gardens and methane for power and heat generation.

Transportation options are key to sustainable community growth. It is not our intention to discourage automobile ownership. Rather, we encourage a variety of transportation modes, and community designs that make automobile ownership optional rather than necessary. Too many citizens of Michigan can't get where they need to be because they can't drive: on account of age, health, disability, or economic issues. We believe basic shopping, schools, entertainment, and worship should be within easy, safe walking distance for all citizens. Some places of employment should also be within walking distance, and others should be accessible by frequent, reliable, reasonably-priced public transportation.

What type of housing would people live in? We believe a mix of housing types is important for the success of a community. In order to be sustainable, a community must welcome multiple income levels. Rentals, condominiums, and traditional home ownership are all options. The most efficient and sustainable way of housing people is in mid-rise apartment buildings, but townhouses, tiny houses,⁵ and single-family homes are all viable in a sustainable community.

Greenfield vs. Brownfield

Most planners discourage "greenfield" development in favor of or "brownfield/greyfield". However, greenfield development is worthy of consideration in certain circumstances. First, what are they?

Brownfield ("an area previously used as an industrial site"⁶) and **greyfield** ("an area previously used primarily as a parking lot"⁷) are often collectively known as **infill development**. Infill saves our open spaces, makes use of infrastructure already in place, and is often closer to shops, employment, services, and urban attractions.

Greenfield ("an area that consists of open or wooded land or farmland that has not been previously developed"⁸) has more access to space for self-sustaining communities, and is readily available in Michigan. In any case, greenfield development is the primary type of development that has taken place recently, and Wake Up Washtenaw's goal is to encourage such development to be done responsibly and make a positive impact.

Wake Up Washtenaw strongly encourages sustainable, transit-oriented infill. However, the potential for breakthrough advances in sustainability is greater in greenfield development. Brownfield development lends itself more to incremental improvements in energy efficiency and transit service. It is also more dependent on the location and configuration of available land, and less likely to be self-sufficient in basic foodstuffs.

What might a sustainable greenfield community look like?

It would be built around a transportation center, which would include retail stores and community services. Immediately surrounding this center, there would be a mixed-use area consisting of retail space, offices, and apartments. The greater part of the community would live in these apartments. Single-family homes, including townhouses, tiny houses, and suburban-style houses in a variety of sizes and price-ranges, would surround the mixed-use area.

A critical feature of a sustainable greenfield community would be its "eco-ring," surrounding the entire community. The concept of an eco-ring is based in the need of a self-sustaining community to be in contact with surrounding nature. It would consist of:

- vegetable gardens, and possibly a dairy and poultry farm;

- waste treatment and energy generation: wind, solar, bio, etc.;
- playgrounds, sports fields and natural habitat;
- school and special purpose buildings.

All residences would be in 5-10 minutes' theoretical walking distance of both the central core and the eco-ring. A modest amount of parking would be provided underground and off-street, to minimize damage of parking lots to the environment and to the pleasant, walkable character of the community. Although privately owned vehicles are not discouraged, sustainable development consciously subordinates the needs of automobiles to those of pedestrians and the natural environment, and true cost of parking space would not be hidden or subsidized through other fees.⁹

What about a sustainable infill development?

If in a compact location, infill could include 8-12 story buildings with solar and wind energy generation capability. Such buildings would be ideal at transportation centers or junctions. (Refer to section 6.2 of this document for the outline of a proposal.)

Another infill pattern is found along corridors with poorly maintained semi-industrial buildings, parking lots, and unoccupied lots. For sustainability, such linear infills need frequent transit service, preferably light rail or rapid bus. Buildings along the street can be 2-5 stories with commercial space at ground level and residences above, while residences within 1-2 blocks of the street with transit service can be built compactly – that is, with small setbacks and little or no open space between buildings. (Section 6.1 outlines a specific proposal for a corridor infill project.)

4. Ways and Means

The most frequent response to these proposals is, “It’s a great idea but it will never work.” Though true now and even ten years ago, conditions will be right for it to work soon. What’s needed to make it happen?

Providing **information and education** is the first step. Our problems are not unique to Michigan, and many creative solutions have been proposed and tried in the United States, Europe, and around the world. We need to find solutions that fit us, and use our Michigan creativity to make them better.

Building support among citizens and groups goes hand in hand with providing information. Many groups find these ideas desirable, but without working together progress is unacceptably slow.

Zoning authorities must support this type of land use. Because most zoning ordinances were developed to meet twentieth-century needs, they discourage land use that puts residences close to services and food supply. It has been said that sustainable development is actually illegal in most of the United States. There are well-thought-out models¹⁰ that can be used to update our zoning ordinances, but that can only happen if local zoning authorities are aware that the public needs and supports such changes.

Capital investment is a must for any type of development. Wake Up Washtenaw encourages private, rather than government investment in both sustainability and transit for a number of reasons:

- Federal funding for transit is hard to get because of competition among many regions;
- State funding in Michigan is extremely limited because of the economy;
- Local funding is even more limited than state funding;

- All government funding comes with “strings” attached, usually resulting in much slower and more costly implementation of plans;
- Private funding is often more innovative and creative in the way it is applied;
- Development can be a very profitable type of investment, especially when it is forward-looking and well thought out;
- Those who make the investments, as well as the citizens, should reap their fair share of the many benefits that come from smart, sustainable development.

What sources of capital would invest in sustainable, transit-oriented development? Given the financial crisis in which we find ourselves, it is unlikely that funding will be available within the next year. That’s not really a problem, because major investment is not needed at the outset; what is needed is education, consensus-building, and zoning modifications. Economies are cyclical, and we can have reasonable confidence that investment will become available when it is appropriate, as long as there is citizen support for new approaches to our economy and lifestyle.

There are a number of companies that support “green” development in Michigan, and nationwide there are those that specialize in it. We support a model in which more than one developer is involved in any greenfield or corridor infill development, because that would not only spread the financial risk, but also prevent any one entity from being able to overrule all others in important decisions.

A key element is engaging one or more transportation provider(s) willing to diversify in a way that increases their profitability (see further discussion below).

Other potential investors include retailers wanting to expand into new, “green” population centers that are attractive to young, talented people; future owners who would like to assure their place in a green home or apartment; investment funds, banks, and venture capitalists. The light rail plans along Woodward Avenue in Detroit exemplify the impact forward-thinking businessmen like Roger Penske can have in kick-starting economic revival through private investment in transit.

An important part of the process is to identify such sources of capital and show them the opportunity.

The **organizational structure** of each community could take any of several forms. A corporation jointly owned by the investors is one possibility; another is a condominium; a non-profit cooperative structure might be an option. Infill developments built along a transit-way consist of individual buildings, which would most likely be built by different organizations, necessitating no overall organization apart from the city or township.

Transit for a greenfield development should be based on rail or other fixed guideway in order to insure adequate return on investment. This is because with fixed guideway systems such as rail, investors can have reasonable confidence that the transportation system will not be moved to another location. Also, such systems provide greater capacity to move large numbers of people, so that existing roadways will not be overwhelmed with traffic from new developments.

In addition to rail, there are a number of possible fixed-guideway systems under development. Rail has a number of advantages, however: the technology is well-proven; there are many available vehicle options; several power sources are available and time-tested; it is known to be one of the most energy-efficient technologies for moving large numbers of people; and systems are in place for using rail to transport heavy freight as well as passengers.

Transit for a infill development depends on the footprint of the development. If it is compact, it should be located over or adjacent to a rail station. Ideally, such developments can be associated with rail hubs, such as the crossing on North Main Street in Ann Arbor between the Ann Arbor Railroad and Norfolk-Southern/Amtrak. For linear developments, frequent bus service is acceptable, though light rail provides a proven boost to land value, and newer forms such as Personal Rapid Transit (PRT¹¹) would probably provide a similar boost in value to adjacent properties once deployed and debugged.

Financing transit has become synonymous with government subsidies in the United States and much of the world. However, we do not believe this need be the case here any longer. There are several parts of the world where transit pays for itself. Most notable are two examples: Curitiba, Brazil, and Japan.

In Curitiba the City constructed infrastructure for bus rapid transit (BRT), being in fact the first entity to develop the BRT concept. However, the buses themselves (both rapid and local) are owned and operated profitably by private companies under contract and in partnership with the city, which collects passenger revenue and distributes it to the operators.¹²

In Japan there are at least twenty private companies that operate commuter and regional rail systems. In every case, the business model appears to take advantage of synergies between rail service and other corporate investments. For example:

- *Tobu* owns a theme park and real estate, served by their railway;
- *Hankyu* and *Hanshin* own department stores which also serve as the main terminals of their rail lines; these are actually across the street from each other in downtown Osaka;
- *Izu* owns popular resorts not far south of Tokyo, with frequent access on their railway;
- *Tokyu* owns a hotel chain with hotels built over several of their stations or adjacent to them;
- *Keisei* owns bus lines that connect with their trains; they also own real estate, tourist attractions, retail stores, and hotels near their train and bus lines. (Keisei's "SkyLiner" connects Tokyo's remote Narita airport with the downtown area.)

From these examples, it appears that key to successful operation of private transit is the creative leveraging of other investments. In Curitiba, the investment was made by the city government, making it a "Public-Private Project" (PPP). The Japanese companies have invested their own funds in properties that enhance their rail business, and vice versa.

In the United States, the main synergy is the great increase in property value that accompanies fixed-guideway transit. This has been documented in city after city where rail transit has been installed within the last twenty years. Property owners within about a half mile of a rail station reap tremendous gains in the value of their land – gains made possible in most cases by the taxpayers who have financed the transit system. Given that there are tremendous profits to be made from fixed transit systems, it makes sense, especially in the absence of government funding, for those who will profit most from transit to make the biggest initial investment in it.

Underutilized rail corridors are the biggest opportunities for investment, especially those in locations where little-used or abandoned rail lines parallel congested highways. These rights-of-way are extremely valuable resources in an age of diminishing fossil fuels and increasing population. When used most efficiently in commuter service, a single track has the potential of carrying about the same volume as four highway lanes – using far less energy in the process. This makes them ripe for investment, upgrading, and use for commuter or regional rail service. Forward-looking planning

authorities will view these lines as potential growth magnets and zone the surrounding areas accordingly.

Careful analysis should be made before converting these rail lines to bike/hike trails. Though good in themselves, trails have much lower potential for curbing sprawl development, saving resources, and lowering carbon emissions. For any entity to re-create a similar right of way through land purchase or other means would be prohibitive. Thus, underutilized rail corridors should be viewed as regional transportation treasures and investment opportunities.

Fortunately, this has been realized in our area. The State of Michigan purchased the northern portion of the Ann Arbor Railroad (the “Annie,” north of the Huron River bridge) when the Annie filed for sale or abandonment in 1986¹³. More recently, Federated Capital¹⁴ has leased rights to operate the line, with the stated intention of eventually restoring passenger service. In 2006, a group from Washtenaw and Livingston County proposed to use the portion of this line between Howell and northern Ann Arbor to alleviate congestion on parallel US 23. The plan has received the necessary approvals, and the Ann Arbor Transportation Authority has agreed to take charge of the operation¹⁵, though the recession has dimmed chances of an early start. Meanwhile, several million dollars (estimates vary up to 32.4 million) will be necessary to upgrade the line to passenger service levels. Though the funds required are considerably less than what would be needed to expand the capacity of US 23, Michigan’s economy makes even that investment difficult. Federated Capital has understandably not been willing to invest the necessary funds to upgrade the line without some guarantee of getting a return on its investment. That is why it is necessary to work out a way for the transportation providers to reap the benefits of their investment by sharing in the community growth their services make possible.

Planning

At this point (early 2010) there is movement on several fronts...but rather slow. The lack of speed is not surprising given Michigan’s long recession, and the depth of the national recession that began in 2008. Wake Up Washtenaw has been directly or tangentially involved in these projects:

- Ann Arbor to Detroit commuter rail, tentatively scheduled to begin service in October this year;
- Ann Arbor to Howell commuter rail, whose progress has slowed to the point where no service date is on the horizon; Wake Up Washtenaw has recently joined forces with the “208 Group”¹⁶ to promote transit-oriented smart growth along the corridor;
- Re-imagine Washtenaw Avenue, an effort by the county to zone for transit-oriented development along that thoroughfare all the way from Ann Arbor to Ypsilanti; though a long-term project, visioning and planning have begun;
- East Michigan Avenue smart-growth zone, an effort by Wake Up Washtenaw to revive and update a 2001 new urbanism plan that was shelved by Ypsilanti Township for lack of community support, just getting under way.

We still need to update our local zoning codes, particularly in the townships of Washtenaw County. The mid-twentieth-century model on which most are based does not lend itself to sustainable development. We suggest basing revised codes on the SmartCode model mentioned earlier.

Next, it is essential to research and promote financial structures that allow all investors – developers, retailers, transportation providers, and residents – to benefit from their investment and

from the communities they foster, without any one entity or group gaining undue advantage over the others. One developing “best practice” for TOD is described by Christopher Leinberger in his article, “Leading the Money”.¹⁷

For each greenfield community, an agro-engineering plan needs to be created detailing “life-support” systems for the community: food production, waste handling, energy generation, transportation.

The urban design for each community needs to be worked out, preferably using the “charette” approach, where urban planners and students are given the opportunity to submit competing designs. Likewise, the architectural style can be the subject of design competitions. In this way, the most creative minds are encouraged contribute to all aspects of the community.

5. Possible Development: Greenfield

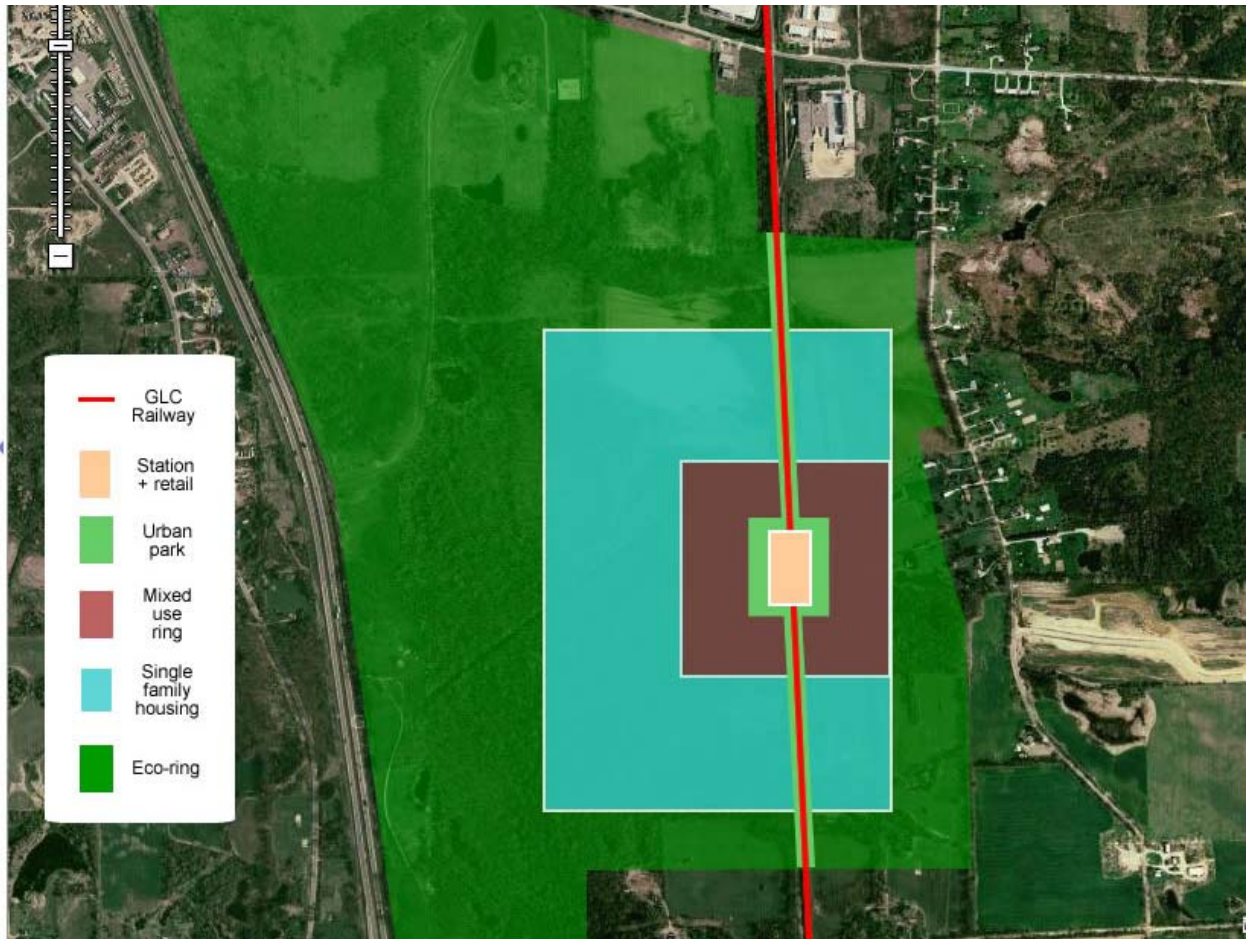
Consider what follows as an illustration of the type of sustainable, transit-oriented community that might be created in a greenfield situation.

Here is a satellite image of an illustrative site.



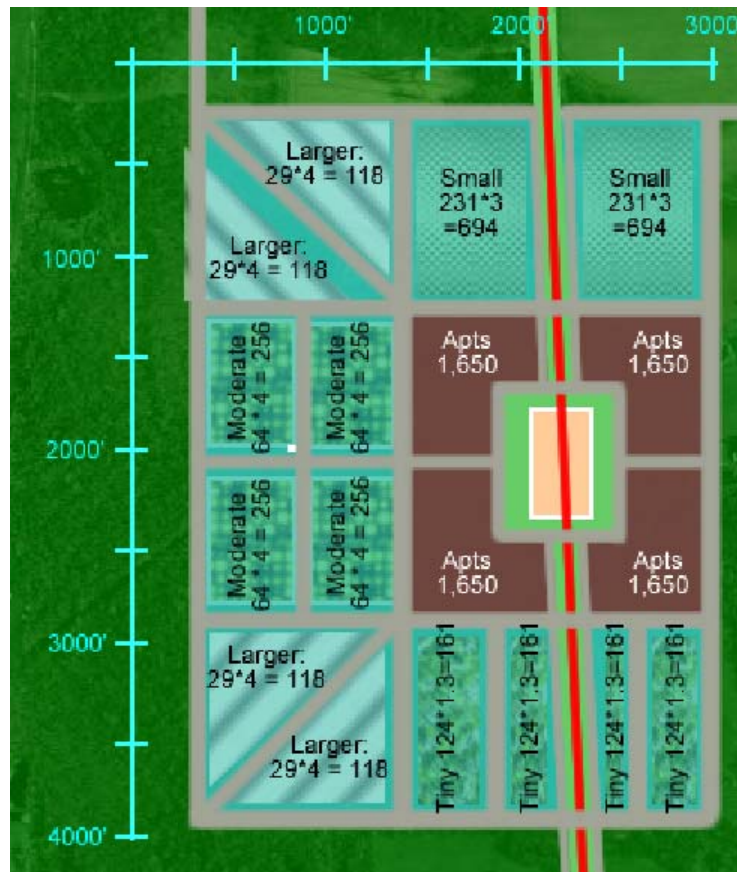
The straight line running top to bottom, just right of center, is a lightly-used rail line which could serve as the transit link between a community and other communities in the area

The next image shows one possible arrangement of the community features discussed in Section 3 “Goals” (above).



The red line is the railway. As it passes through the community area, it would be surrounded by a protective berm planted with trees and shrubs as a noise barrier. Midway between the north and south boundaries of the development area is a station with retail space (tan), surrounded by a small, urban park (green). If you were to get off a train here, you would find a four-block mixed use area with shops, office space, and apartments or condominium properties. The buildings here would be perhaps four stories high, with green roofs and 2-3 levels of parking beneath. Walking further out from the center, you would come to two or three blocks of single-family houses of varying sizes, before arriving at the eco-ring which surrounds the entire community.

The community needs to have a robust population size in order to support the investment. To estimate the population, the layout in the next image was roughed out. It should be understood not as a design suggestion but as a tool for answering the question, “How many people could live here?” An approximate number is arrived at by estimating the average number of people for each type of housing unit.



The table on the next page shows the calculations based on this hypothetical community layout, arriving at a total of 9,772 potential inhabitants.

Green Community: Theoretical Residential Capacity

Single-family homes

House type	Blk Len Ft	Blk Wid Ft	Blk Area SqFt	Lots per acre	Lot Area SqFt	Houses per block	Avg. Occu-pancy	Avg. pop/ block	Blocks	Houses	Residents
1 Larger (triangular blocks)	800	800	320,000	4	10,890	29	4	118	4	118	470
2 Moderate	700	500	350,000	8	5,445	64	4	257	4	257	1,028
3 Small ("townhouse")	900	700	630,000	16	2,723	231	3	694	2	463	1,388
4 Tiny	900	250	225,000	24	1,815	124	1.3	161	4	496	645
Total											3,532

Apartments/Condos	Len Ft	Wid Ft	SqFt	Units per block	Avg. Occu-pancy	Avg. pop/ block	Blocks	Units	Residents
5 Central land area	1500	1500	2,250,000						
6 Less park & station	900	750	675,000						
7 Less streets & courts			1,250,000						
8 Space per floor			325,000						
9 Residential floors			3						
10 Total residential space			975,000						
11 Space per apartment			1,250						
12				780	2.0	1,560	4	3,120	6,240
Total Estimated Residential Capacity									9,772

Notes on the Calculations

Some have expressed doubt about the calculations in this table. That doesn't surprise me, since I was amazed at the results myself, particularly of the residential capacity of the mixed-used apartment area. Here is the background of each estimate, keyed to the number of each row in the table.

1. Larger houses: Average occupancy 4, because this type of house would be appropriate for families with children. Average lot size is a generous ¼ acre (10,890 square feet), though with triangular blocks, lot size could vary considerably. (Triangular blocks are specified at the corners of the development to provide more direct walking access to the town center.)

2. Moderate houses: Average occupancy also 4, with lots 5,445 square feet providing fairly typical “suburban” setbacks.
3. Smaller houses are suggested in a townhouse design - that is, without lateral setbacks and with front setbacks no more than 12 feet. An average of three occupants provides for a mix of young couples, families, and empty-nesters. Lot size of 2,723 square feet is more than adequate for townhouses of generous size, while allowing for open space within each block.
4. “Tiny house” is a classification that has arisen in the last few years. “Tiny” is generally considered to be under about 500 square feet. Efficient designs are available from such companies as Ross Chapin Architects¹⁸, Tiny Home Company¹⁹, and Tumbleweed Tiny House Company²⁰. Because of their limited size, a significant percentage will have only one occupant; hence the estimate of an average occupancy of 1.3. Lot size of 1,815 square feet allows for separation between houses as well as gardens.

Calculating potential apartment population is a bit more complicated due to the irregular shape of the apartment area and the need for open courts within the buildings themselves. Given the shape of the area allocated for the center of the development – transit station, park, streets, and mixed use areas – we start with the total area of the center and subtract the non-residential areas within it:

5. The town center as envisioned for this estimate is about 1500 by 1500 linear feet, giving a total area of 2,250,000 square feet.
6. The station and its surrounding park are 900 by 750, that is, 675,000 square feet to be subtracted from the central area.
7. 1,250,000 square feet is a rough estimate of space needed for open courts within buildings and streets around them.
8. With four blocks of apartments, we get 325,000 square feet of residential space on each floor.
9. Four stories in the central area provides a reasonable population for the development, without overshadowing the smaller surrounding houses. Since the ground level is intended for office and retail use, only the upper three stories are residential. (Two or three levels below would provide parking space. Soil excavated for the basements of these buildings would be available for berm around the railway line and other uses. On the roof, a glass-enclosed “green” level might provide space for growing vegetables, trapping solar energy, and renewing air quality.)
10. Total residential space on the three floors comes out to 975,000 square feet.
11. The floor space estimated “per apartment,” 1,250 square feet, may seem overly generous, but actually includes corridor and utility space, such as storage and laundry rooms.
12. With 780 units per block, we estimate 2 people average per apartment, allowing for single occupants, couples, and some children. Four blocks of 1,560 residents results in 6,240 apartment/condo residents in 3,120 units.

The total population including apartment/condo and home residents would be **9,772**. Of these, approximately 64% would live in apartments or condos, 7% in “tiny houses”, 14% in townhouses, 11% in moderate size houses with individual yards, and 5% in larger houses.

6. Possible Development: Infill

Two general types of development can be encouraged in parts of Washtenaw County that are already built up: **compact** and **corridor**. We'll discuss two specific possibilities here.

6.1 Corridor Infill Project

Description of the area: Drive due west from Times Square in the heart of downtown Detroit. You're at the eastern origin of US 12, Michigan Avenue. If wanderlust moved you to drive all the way to the western terminus of US 12, you would find yourself in the port of Aberdeen, Washington, near the Pacific coast. But less than an hour from the start of your trek, you would enter Washtenaw County, just north of the Willow Run airport and manufacturing complex, built during World War Two to produce thousands of B-17 bombers. Currently, the complex owned by financially ailing General Motors, which has announced plans to abandon it. Local residents insist this was where the original "Rosie the Riveter" worked, and if you continue



just a little farther in Ypsilanti Township, you'll see on either side of Michigan Avenue plenty of gritty areas where aging Rosies hang out, largely forgotten by their country.

East Michigan Avenue in Ypsilanti Township is a problem area, plagued with substandard housing,²¹ prostitution,²² "blight and safety issues, as well as Fire Department issues".²³ In April of 2001, the Township Board was presented with a draft "Ecorse Road and East Michigan Avenue Corridor Plan"²⁴ to address such issues; it was carefully researched and proposed following New Urbanism²⁵ principles, and had great potential. However, after brief consideration by the

Township Board, it was rejected because opposition was voiced by a handful of vocal business owners who believed the plan might be detrimental to their businesses.²⁶ The current issues just mentioned demonstrate that nothing significant has been done since 2001 to address the underlying problems, though federal stimulus "neighborhood stabilization" funds are being used to demolish substandard housing along the corridor.

Because of the careful work and sound principles that went in to the corridor plan, it is an excellent basis for sustainable, transit-oriented corridor infill development. In the intervening years, the urgency of the energy situation has become more apparent, so a number of details need to be added to the plan. We will focus here only on Michigan Avenue, though similar plans for Ecorse Road are certainly appropriate.

Summary of the 2001 Plan

Here are the goals and strategies proposed in the 2001 plan; I have taken the liberty of rearranging the order of the strategies, but have left the original wording²⁷ unchanged.

Michigan Avenue Goals:

- Establish an active, strong economic center for the community as well as the region at the same time portraying a comfortable, positive image for Ypsilanti Township.

- Provide safe and efficient circulation for multiple modes of transportation along the corridor that: preserves the level of service of the roadway; provides convenient access to business and neighborhoods; unifies the corridors and surrounding community; and promotes the quality image of the Township

Strategies:

- Plan for public investment that will complement and support private investments along the corridor which support the character and design goals
- Reduce reliance on the automobile by creating a pedestrian and transit oriented, mixed-use environment
- Coordinate with the local transit authority to improve the condition and function of bus stops and expand the route area to better serve residents, shoppers and employees and enhance access to core locations
- Create a pedestrian-oriented environment for all sites that is compatible with the character of the area and the nature of the uses
- Expand the residential in a manner consistent with traditional neighborhoods where appropriate in the form of high quality townhouse style units
- Develop specific special conditional use, or "performance standards", for intense uses to ensure they are properly located and designed
- Incorporate open spaces and plazas into site design
- Design commercial sites in a manner that creates a pedestrian friendly, traffic calming environment
- Orient buildings and entrances to businesses towards the road with parking in the rear
- Require pathways along all site frontages that are a reasonable width based on available right-of-way, the size of the lot and surrounding conditions
- Design sites to accommodate pedestrian movement; Promote a convenient and comfortable pedestrian environment by providing connections to neighborhoods and safe places for walking
- Institute traffic calming techniques to reduce speeds along the corridors
- Develop specific access management standards that regulate the number of driveways per site, driveway spacing from other driveways and driveway spacing from adjacent intersections
- Establish specific and effective landscaping requirements that creates a tree-lined streetscape; screens and softens views of the site; and enhances internal open space and parking areas
- Install decorative street lighting and street furniture
- Establish architectural design standards that relate to the type, scale and intensity of proposed uses and the desired quality and appearance of the business districts
- Create consistent building lines and setbacks that relate to the size of the proposed lot and type and scale of the building and use
- Be cognizant of the rear facades of buildings in order to present a quality, welcoming appearance to businesses for visitors and to ensure pleasing views from abutting properties
- Encourage placement of utilities underground

- Develop parking lot design standards

Additional Recommendations

The goals and strategies recommended in 2001 are entirely consistent with Wake Up Washtenaw’s vision. A number of additional strategies will make this plan more sustainable, and fit it into “smarter” overall growth strategies for the 21st century.

1. Use Transfer of Development Rights (TDU) to encourage new development in the Michigan Avenue corridor and halt greenfield suburban development in Ypsilanti Township. The southern end of Ypsilanti Township is zoned for extremely low-density, upscale development. It was equipped with water and sewer lines in the 1970s, but south of Textile Road there are still many acres of farms and woodland. Rather than bulldoze fields and trees, development dollars can be applied to resolving the problems of the Michigan Avenue corridor.
2. Grow the transit system on Michigan Avenue. Although the Ann Arbor Transportation Authority (AATA) provides nominal service to the area, it is inadequate to building reliable patronage. Michigan Avenue is served only between Spencer and Harris, about one-third of the length of the corridor in Ypsilanti Township. AATA Route 10, the line that runs on Michigan Avenue, is scheduled only once every hour, in a west-bound direction. There is no east-bound service, so passengers coming from Ann Arbor and downtown Ypsilanti must ride a circuitous route that takes twice as long to reach Michigan Avenue (29 minutes) as in the other direction. There is no service on Sunday, though there are numerous churches along the route (albeit not on Michigan Avenue itself).
3. Identify open areas in the Michigan Avenue corridor to designate as urban gardens. As oil prices make it more expensive to transport fruit and vegetables from out of state, this land could provide fresh, local produce at reasonable prices. Coordinate with Transition-Ypsilanti²⁸ to identify locations and appropriate technologies for urban gardening.

The first two strategies require some expansion, so we’ll discuss TDU and transit growth next.

Transfer of Development Rights (TDU)

TDU combines local government and business interests to protect open land (such as farm and forest) and encourage denser development in areas where that is desirable. The local government designates *sending areas* (typically farm and forest) and *receiving areas* (generally inner core or other places where development is encouraged).

1. The local jurisdiction (Ypsilanti Township) identifies sending and receiving areas.
2. The jurisdiction then allocates “development credits” within the sending area.
3. Owners of land in the sending areas sell their development credits to developers, speculators, or the community in return for payment and/or a tax abatement. Free market forces determine the value of the development credits. Once the credits are sold, a permanent conservation easement is placed on the land in the sending area.
4. Developers who purchase these credits are then allowed to build within the receiving zone in ways that are more profitable for them. This is usually at a higher density or with taller buildings, using such measures as Floor to Area Ratio (FAR) and feet of height.²⁹

Growing Transit on Each Michigan Avenue

A frequent dilemma in transit-oriented development is whether to build the transit first to encourage development, or develop first to provide riders for transit. A good solution in this case is to grow transit step-by-step while development is encouraged in other ways.

Step 1: Lay the financial groundwork. As part of any improvement of East Michigan Avenue, a funding foundation must be in place. A number of possibilities exist, such as a Special Assessment District for public financing, a Business Association for private financing, a Community Development Corporation for channeling public and private funds and seeking grants (including Brownfield Redevelopment grants). As this is being written, Washtenaw County is considering³⁰ a county-wide plan to fund transit, but local funding for Michigan Avenue would always be helpful to ensure adequate service.

Step 2: Increase service quality and frequency. Service in one direction over a small part of the corridor is clearly inadequate. A bus route that serves Michigan Avenue exclusively, from downtown Ypsilanti to the county line or the Willow Run industrial complex is more straight-forward and easy for users to understand. Service should initially be increased to once every half-hour, to put it on a par with service in the Ann Arbor area. Even that is not adequate for transit-oriented development, so as development begins to happen in the corridor, frequency should be increased.

Step 3: Re-engineer Michigan Avenue. In concert with efforts to develop a human-scale environment in the corridor as suggested in the 2001 plan, Michigan Avenue needs to be re-built from a five-lane highway having speed limits of 45 and 50 MPH, with multiple driveways and alleyways debouching into it. Part of this re-engineering should involve dedicated transit lanes. Initially these would be used by buses, perhaps in a “rapid bus” (BRT) configuration.

Step 4: Add a fixed-guideway transit system. Eventually a fixed-guideway system such as light rail could be added. Fixed-guideway systems are ideal as magnets for development, because they encourage investment of high-density residential and commercial real estate. Light rail on Michigan Avenue from Detroit through Ypsilanti is identified as option LRT 5 in the 2006 SEMCOG/Parsons study³¹. Because of its initial cost, it is not being considered as the first step in the Detroit-Ann Arbor transportation corridor, but as federal and private funding becomes available it may well be started. Having dedicated transit lanes already in place would significantly lower the cost, and hence raise the likelihood, of developing such a system. Having East Michigan Avenue in Ypsilanti be part of a light rail corridor from Detroit to Ann Arbor would be a significant boost to the local economy, and would greatly add to the value of real estate. It would make East Michigan Avenue especially attractive to businesses considering a location in the proposed Aerotropolis Corridor.³²

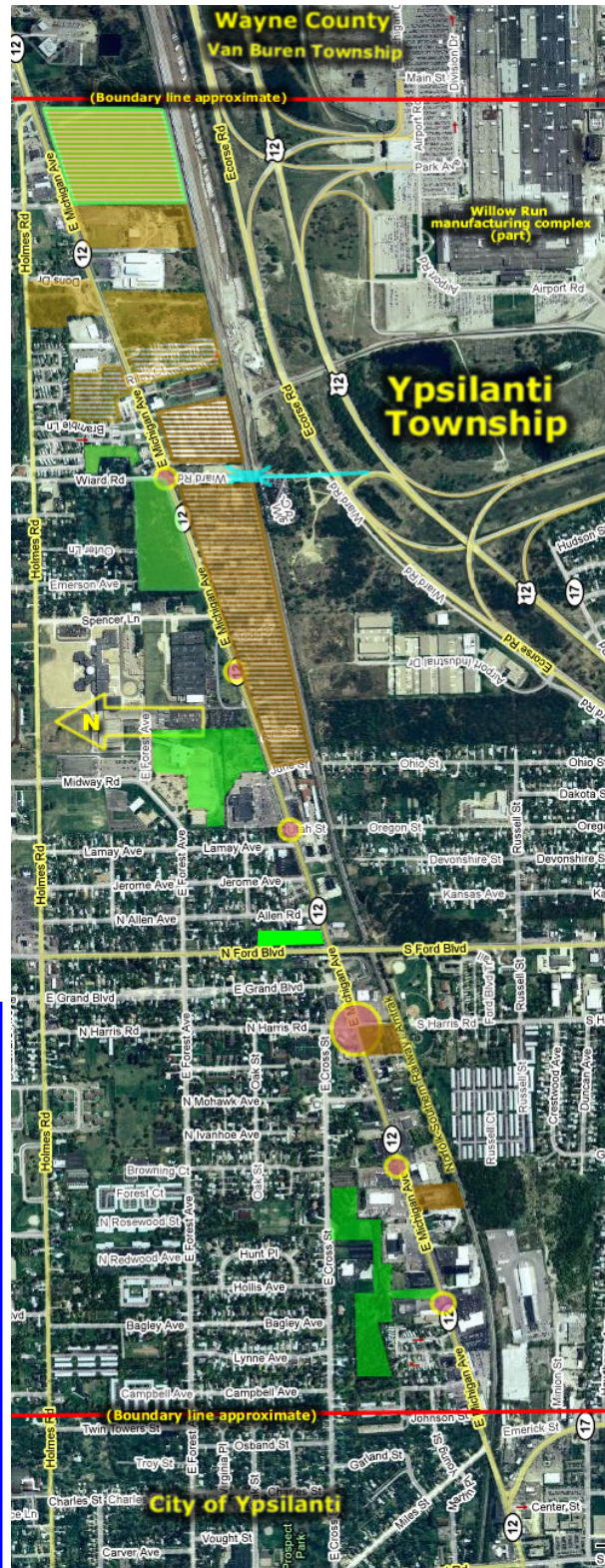
Aerial overview – next page.

Overview of the East Michigan Avenue Corridor

The aerial view at right shows the northeast section of Ypsilanti Township around the East Michigan Avenue corridor. A rough, preliminary indication of suggested new features is overlaid. The intention is to stimulate further discussion and investigation; no GIS, title, or land survey has been performed.

The main features shown are:

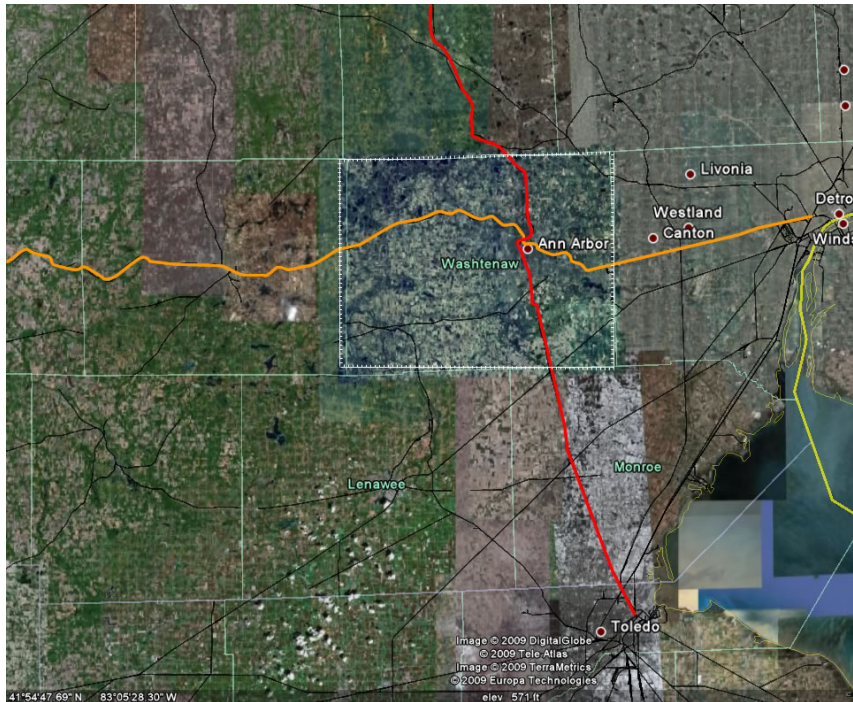
- Land to consider for redevelopment;
- Land currently not developed to consider for designation as parks or urban farms;
- One primary transit station (large circle at Harris Road);
- Several secondary transit stations (smaller circles);
- Wiard Road extension over the Norfolk Southern railway, as recommended in the 2001 plan.



Legend	
Currently undeveloped, consider for park or farm use.....	
Currently undeveloped, consider for either building or open use.....	
Currently underutilized, consider for mixed-used building.....	
Currently developed, consider for brownfield redevelopment.....	
Possible primary transit station.....	
Possible secondary transit station.....	
Possible road extension and overpass.....	

6.2 Compact Transportation-Oriented Infill Project

One of the most exciting potential infill projects in Washtenaw County is the location at which the former Michigan Central Railroad³³ and the Ann Arbor Railroad cross. In a post-automotive age, this



would be the single most important crossroads of the region west of Detroit and east of Jackson: the place where the east-west rail line from Detroit to Chicago meets the north-south line from Toledo to Traverse City.

This cross-over is also key to sustainable, transit-oriented development in Washtenaw County, because of the potential of each of the two rail lines as corridors for sustainable development. For transit to be a practical and meaningful alternative to driving, it is

essential to be able to transfer quickly and conveniently from one transit line to another. In countries where passenger rail is healthy, such as Europe and Japan, stations are placed at the junctions between lines to facilitate transfers. Just as importantly, healthy passenger rail systems give rise to lucrative retail, office, and lodging venues in and around such rail transfer points.

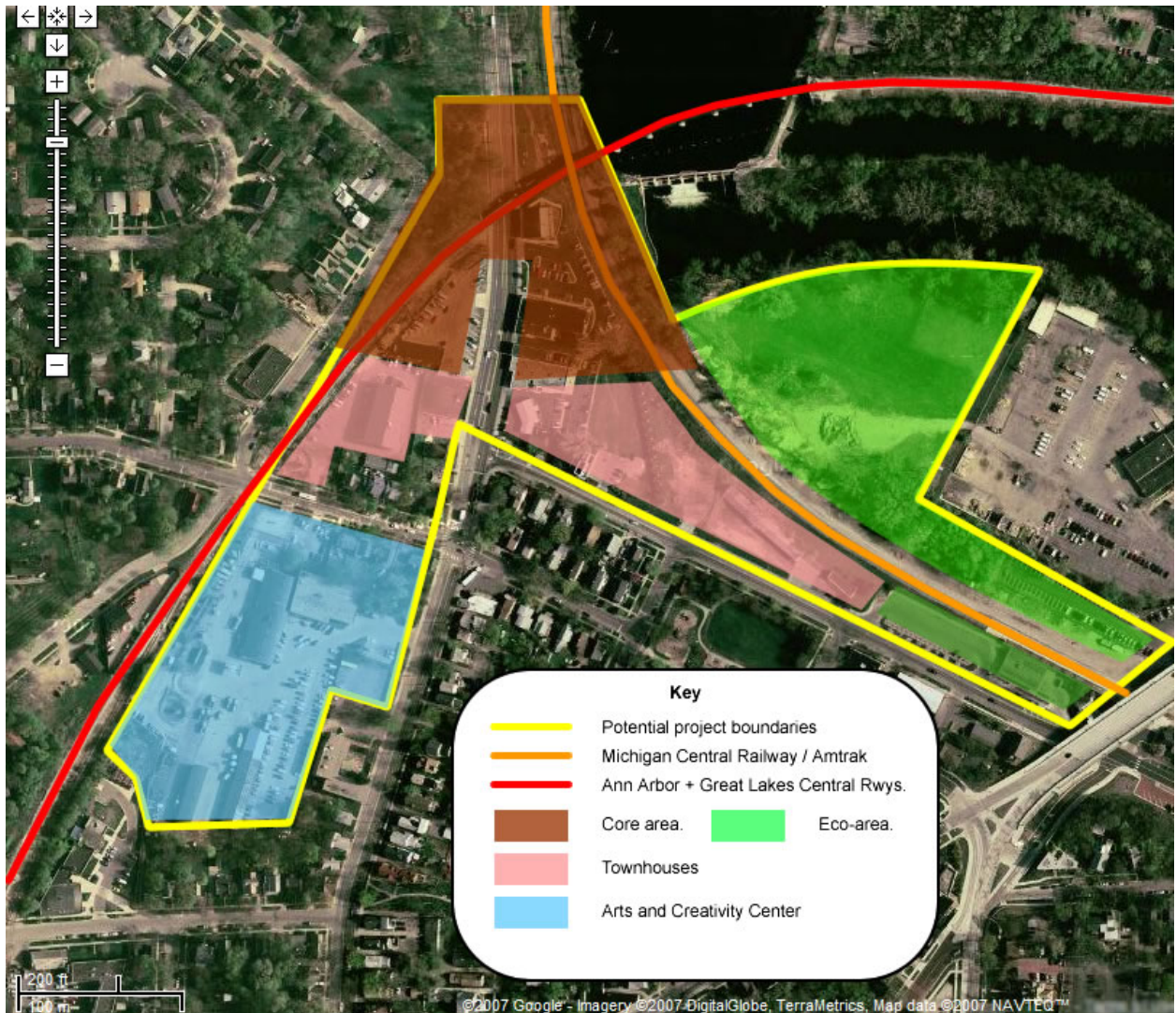
Considering both the importance of having a transfer point at this junction, and the business potential of transit oriented development, the crossing of the Michigan Central and Ann Arbor railways is probably the single most valuable location for TOD in Washtenaw County. It also has potential as a “green” development, because of adjacent empty land that could be used as either park or urban farmland.

Let’s take a look at the details. An aerial photo (next page) is overlaid with proposed areas of development.

- The north-south Ann Arbor Railroad³⁴ (AA, red line) enters the area from the southwest after having passed immediately west of downtown Ann Arbor, following the Allen Creek valley. Along most of its route it is elevated on an embankment (except for the Summit Street crossing, which is at grade). The line swings eastward in a broad curve, passing over Main Street and the Michigan Central line. From there, it crosses the Huron River just upstream from Barton Dam on a single-track viaduct, arriving at the north shore of the river going in an easterly direction. Just beyond the east edge of the map, the line swings northward, paralleling Plymouth Road for a while as it aims for Whitmore Lake, Howell, and points north. On the north bank of the river, the track belongs to the State of Michigan³⁵, and is leased to Great Lakes Central Railroad³⁶, a Federated Capital Corporation subsidiary³⁷.

From the bridge south to Toledo, the line still belongs to the original Ann Arbor Railroad. Shortly before crossing Main Street, there is an embankment which formerly carried a steep track down to the Michigan Central line (MC, orange line) for exchange purposes. That track has long since been torn up, and the combination of the track angles and grade separations makes it impractical for trains to change from the MC to the AA line.

- The former Michigan Central line enters the map area near the southeast corner and curves north as it follows the Huron River valley. The original Michigan Central Ann Arbor station, currently a restaurant, is just off the map on the right. The Amtrak station is a small building south of the track, under the shadow of the Broadway Street bridge. Despite its humble size, this station is the busiest in Michigan, and second only to Chicago Union Station in passenger activity along Amtrak's Wolverine Corridor: 144,542 passengers in 2008³⁸.



- The current composition of this section is a mix of mostly single-story sales and office

buildings, automotive repair facilities, and two-story frame residences. The City of Ann Arbor had its utility vehicle yard south of Summit, between Main and the AA line, though this has recently been sold.

- The shape of the area is challenging because existing residences have a distinct midwestern charm, and it would be insensitive to destroy them. The remaining space currently consists of four disparate areas:
 - North (brown): the core rail crossing area, with small offices and automotive shops;
 - Southwest (blue): the former city maintenance yard;
 - South central (pink): small commercial buildings with parking facilities;
 - East (green): potential open space – south of the MC line, owned by Amtrak and occupied by the current small, one-story station building and adjacent parking lots; north of the line, owned by Detroit Energy, and possibly contaminated.

There are several ways this area could be developed, but the general idea is to focus intensive commercial and hospitality facilities as close as possible to the actual crossing of the tracks. The reason for this is simple: to make it as easy as possible for transferring passengers to walk from one train to another. As they walk and wait for their train, they should be surrounded by inviting and relaxing opportunities to browse for books, gifts, a cup of latte, a snack, or a meal. For those with a longer layover, comfortable hotel accommodations should be within easy walking distance. Office and living space should be almost as close, and all should be designed to be as energy-efficient and self-sufficient as possible. With relatively little open space, and located within the City of Ann Arbor, there would be no need for the development to provide its own water or dispose of its own waste; however, the available open space could be used for urban farming as well as recreation.

The plan suggested here is anchored by a high-rise building in the core area, straddling both rail lines and Main Street. Building over the rails and street provides a covered (but well ventilated) space for passengers transferring between trains and from automobiles or buses to trains. It also makes more efficient use of the limited space. Since the rail lines are on separate levels, passengers would transfer between them using escalators and elevators. A bus terminal for local and regional service, also under cover, would be located nearby, probably on the same level as Main Street and the MC rail line. Above the transportation levels would be retail space, and above that, office, hotel and possibly residential space as well.

In the south central areas along Depot Street and Main Street, compact residential development consisting of apartments or townhouses could be built. An existing three-story office structure recently completed at 201 Depot Street would fit nicely into this area.

The property highlighted in blue, formerly the city utility yard, could also be developed as compact residential or mixed-use space. A related alternative is to use the space as an arts and creativity center. (This idea was proposed at a Calthorpe town meeting sponsored by the Downtown Development Authority.) The purpose of such a center is to encourage artistic creativity as an essential part of Michigan's economic development. Evidence shows that where creative arts flourish, engineering and technological creativity thrives in conjunction. A creativity center would

include affordable living space, studio facilities, galleries, and performance spaces, as well eating and entertainment venues.

The green areas on the map are actually “brown”: either parking lots, small buildings, or potentially contaminated land. Their location near the river makes them ideal, once remediated, for recreation and urban farming.

An interesting opportunity exists because of the proposed Ann Arbor Greenway, which runs roughly along the AA line in the Allen Creek flood plain. Much of the land proposed for this development is in the proposed Greenway area, so they might be perceived as mutually exclusive. However, the two plans can not only coexist, but thrive together. New development of this type can create green space to be enjoyed by residents and passers-by alike. Since the land is a flood plain, buildings should be elevated above 200-year flood levels, leaving space below to weave paths and shade-loving shrubbery around a resurrected Allen Creek, which is now largely buried in an underground culvert. This is an excellent place to exercise creative landscape architecture, with a result which could greatly enhance the area. The core building itself would be situated over the mouth of Allen Creek, where it flows into the Huron River. The challenge of creating a space at the base of the building that not only accomodates the creek, but celebrates it, would result in architecture worthy of distinction.



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In Conclusion

New York Times writer Nicolai Ouroussoff, in a recently published article³⁹ discusses the condition of America’s cities. He concludes with this observation: “A half-century ago American engineering was the envy of the rest of the world. Cities like New York, Los Angeles and New Orleans were considered models for a brilliant new future. Europe, with its suffocating traditions and historical baggage, was dismissed as a decadent, aging culture. It is no small paradox that many people in the world now see us in similar terms.”

Washtenaw County does not need to suffocate in its traditions, weighed down with the historical baggage of an automobile-obsessed culture. But unless we wake up now and begin to transform ourselves, we may well discover that we are trapped in an energy-poor world with few resources to effect our transition to a desirable, sustainable, low-energy lifestyle.

– ***Wake up, Washtenaw!*** –

Endnotes

- ¹ U.S. Energy Information Administration. http://tonto.eia.doe.gov/energyexplained/index.cfm?page=us_energy_use
- ² *Michigan's Transition to a Knowledge-Based Economy: First Annual Progress Report*. (2009) Lou Glazer and Don Grimes. Michigan Future, Inc. michiganfuture.org. p.21.
- ³ *A New Agenda for a New Michigan*. (2008) Michigan Future, Inc. michiganfuture.org
- ⁴ U.S. Green Building Council. <http://www.usgbc.org/>
- ⁵ Tiny house resources : <http://resourcesforlife.com/groups/smallhousesociety/resources.htm>
- ⁶ *SmartCode Version 9.0*. (n.d.) Andrés Duany, Sandy Sorlien, and William Wright. The Town Paper Publisher. P. SC47.
- ⁷ *SmartCode Version 9.0*, p. SC50
- ⁸ *SmartCode Version 9.0*, p. SC49
- ⁹ The High Cost of Free Parking. Donald C. Shoup. Reprint UCTC No. 351. The University of California Transportation Center University of California Berkeley, CA 94720
- ¹⁰ *SmartCode Version 9.0*.
- ¹¹ Personal Rapid Transit: learn more at PersonalRapidTransit.com (<http://www.personalrapidtransit.com/>), Citizens for Personal Rapid Transit (<http://www.cprrt.org/>) and many other Web sites.
- ¹² Bus Rapid Transit in Curitiba, Brazil - An Information Summary. Leroy W. Demery, Jr. 2004. [publictransit.us](http://www.publictransit.us) Special Report No. 1. <http://www.publictransit.us/ptlibrary/specialreports/sr1.curitibaBRT.pdf>
- ¹³ See Michigan Department of Transportation at <http://www.michigan.gov/mdot/0,1607,7-151-11056-59647--,00.html>
- ¹⁴ Federated Capital Corporation: <http://www.federatedcapital.com/>
- ¹⁵ AATA agrees to head WALLY commuter rail project, <http://www.theride.org/Wally.asp>
- ¹⁶ The 208 Group: <http://208group.com/>
- ¹⁷ Christopher Leinberger, "Leading the Money". Architectural Record 6.03 (Online at http://www.cleinberger.com/docs/About_CL/Leading%20the%20Money.pdf)
- ¹⁸ Ross Chapin Architects, <http://www.rosschapin.com/index.html>
- ¹⁹ Tiny Home Company, <http://www.tinyhomes.com/index.html>
- ²⁰ Tumbleweed Tiny House Company, <http://www.tumbleweedhouses.com/>
- ²¹ *The Ann Arbor News*, Thursday October 09, 2008, "Laswuit alleges unsafe conditions at Ypsilanti Township mobile home park" by Khalil Hachem. (Online at http://www.mlive.com/news/ann-arbor/index.ssf/2008/10/laswuit_alleges_unsafe_conditi.html)
- ²² *The Ann Arbor News*, Sunday October 19, 2008, "Ypsilanti Township steps up prostitution crackdown" by Tom Gantert. (Online at http://www.mlive.com/news/ann-arbor/index.ssf/2008/10/ypsilanti_township_steps_up_pr.html)
- ²³ Wm. Douglas Winters, Township Attorney. Charter Township of Ypsilanti, Minutes of the June 3, 2008 Regular Meeting. (Online at http://www.twp.ypsilanti.mi.us/documents/serve.php/1756/June_3rd_2008.pdf)

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- ²⁴ Charter Township of Ypsilanti. "Ecorse Road and East Michigan Avenue Corridor Plan," online at <http://www.twp.ypsilanti.mi.us/corridor/>
- ²⁵ New Urbanism. <http://www.newurbanism.org/> and <http://www.cnu.org/>.
- ²⁶ Personal communications, Joseph Lawson and David Nicholson, January and February, 2009.
- ²⁷ "Preliminary recommendations", online at <http://www.twp.ypsilanti.mi.us/corridor/preliminary-rec.pdf>.
- ²⁸ Transition-Ypsilanti: <http://www.ypsilantitransition.ning.com>
- ²⁹ Transfer of Development Rights (TDR): National Association of Realtors "Field Guide to Transfer of Development Rights (TDRs)" (<http://www.realtor.org/library/library/fg804>) and 1000 Friends of Minnesota "Fact Sheet #5" (<http://www.1000fom.org/lctools5.htm>) and
- ³⁰ "Countywide transit plan envisioned in Washtenaw." Posted by John Mulcahy, *The Ann Arbor News*, March 25, 2008 09:45AM. On line at http://blog.mlive.com/annarbornews/2008/03/countywide_transit_plan_envisi.html
- ³¹ "Ann Arbor-Downtown Detroit Alternatives Analysis / Draft Environmental Impact Statement Transit Study. Detailed Definition of Alternatives." Prepared by Parsons Corporation for Southeast Michigan Council of Governments, June 2006. Online at <http://www.semco.org/WorkArea/linkit.aspx?LinkIdIdentifier=id&ItemID=5567>
- ³² Detroit Region Aerotropolis: <http://www.detroitregionaerotropolis.com/>
- ³³ The Michigan Central Railroad, originally incorporated in 1846, is now owned and operated by several different companies. The portion that runs through Washtenaw County is currently owned by Norfolk Southern Railway (<http://www.nscorp.com/nscportal/nscorp/map.html>) and is used by Amtrak for its "Wolverine Service" trains running between Detroit and Chicago (http://www.amtrak.com/servlet/ContentServer?pagename=Amtrak/am2Route/Horizontal_Route_Page&c=m2Route&cid=1081256321995&ssid=133).
- ³⁴ Ann Arbor Railroad: <http://www.annarbor-railroad.com/>
- ³⁵ The State of Michigan refers to this rail line as the Ann Arbor and Northwest Michigan System: <http://www.michigan.gov/mdot/0,1607,7-151-11056-59647--,00.html>
- ³⁶ Great Lakes Central Railroad: <http://www.glc railroad.com/>
- ³⁷ Federated Capital Corporation: <http://www.federatedcapital.com/>
- ³⁸ Boardings and deboardings at Ann Arbor's Amtrak station: <http://mdotwas1.mdot.state.mi.us/public/railstats/index.cfm?event=CorrStationActRpt>
- ³⁹ Nicoloi Ouroussoff, "Reinventing America's Cities: The Time Is Now". *The New York Times*, March 25, 2009. <http://www.nytimes.com/2009/03/29/arts/design/29ouro.html?pagewanted=1&r=1&emc=eta1>