The Go Team

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By the third day of the workshop, the Go Team had agreed on six key strategies:

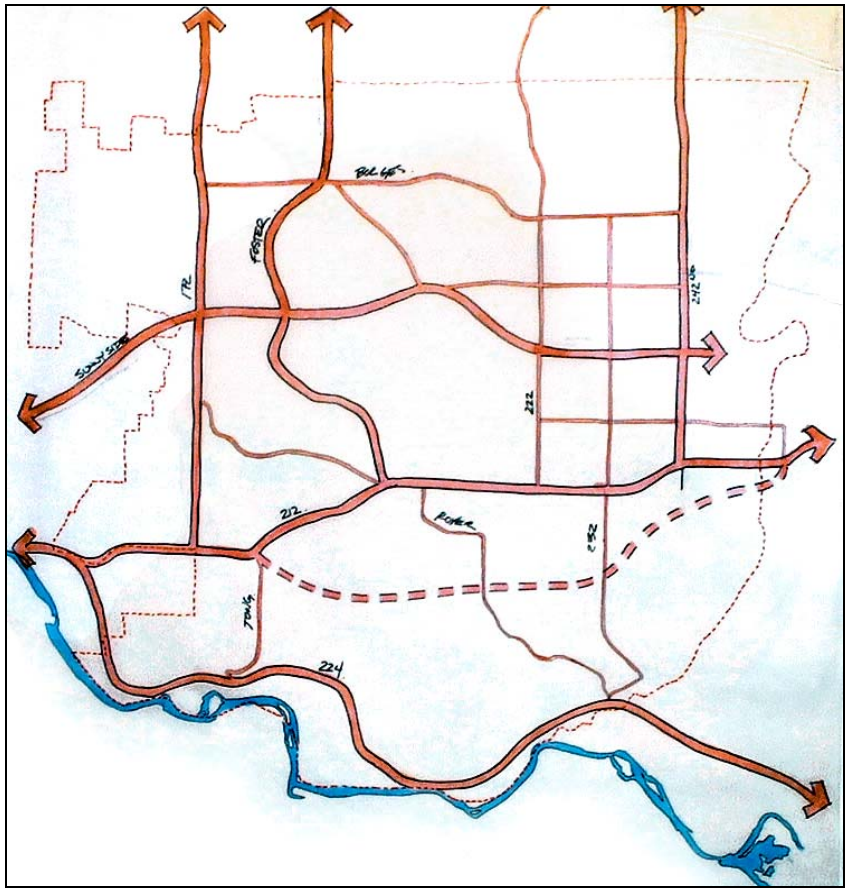
1. Metro's 600 foot interconnectivity standard would be adhered to wherever possible;
2. existing property lines would be respected when imposing a new movement system;
3. a distributed system of movement would reduce the need for a limited access freeway and lower overall servicing costs for the area;
4. all streets would be "green streets" to reduce or eliminate the consequence of roadway impervious surfaces on watershed function;
5. one new major east/west connection was necessary to prevent bottlenecks in Damascus Center; and
6. there was a less expensive and more transit friendly option for moving traffic to and through Damascus Center than the Sunrise Freeway.

The 600-foot Standard for an Interconnected System of Streets and Blocks

Research shows that an interconnected streets system can help reduce auto dependence.[3] An interconnected street system, in concert with a fine grain pattern of land use and an average density in built up areas of 8-10 dwelling units per gross acre[4] (a density common to many of Portland's older neighborhoods) can lead to reductions in vehicle miles traveled per person per day (VMT) of over 40%. Metro, as part of a comprehensive and multi part strategy for reducing congestion, has instituted a policy calling for a 600-foot maximum distance between through streets in newly developed areas. When the Go Team attempted to apply this standard, they found that the 600-foot measure was easily applied to the

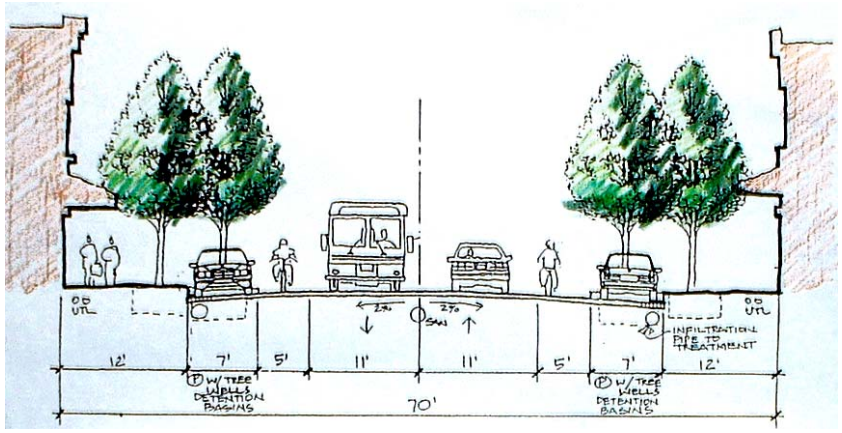
Damascus area landscape. Like most North American rural landscapes, the Damascus area was originally subdivided into 40-acre squares called “quarter quarter sections.”[5] The edges of these agricultural sections were always aligned to the cardinal directions. These sections are still visible in the region’s pattern of land ownership and road layout. In many cases the parcels have been divided into 20, 10, 5, or 2 acre pieces, but these pieces still sit inside the original 40-acre square – their edges aligned north/south and east/west. The 600 foot increment, when made into a square and then cut in half to form a useful 300 by 600 foot rectangular block, easily adapts to the existing pattern of property ownership and, consequently, to the existing community pattern of the Damascus area. Using this increment, and respecting the north/south east/west orientation of parcels, makes it possible to urbanise this rural landscape a little bit at a time without large-scale land assembly and without relocating existing residents. Indeed, parcels as small as 300 feet by 600 feet (4.2 acres) are easily developable, as this is enough land to complete one urban block. Other adjacent blocks can be added later as circumstances dictate without loss of system integrity.

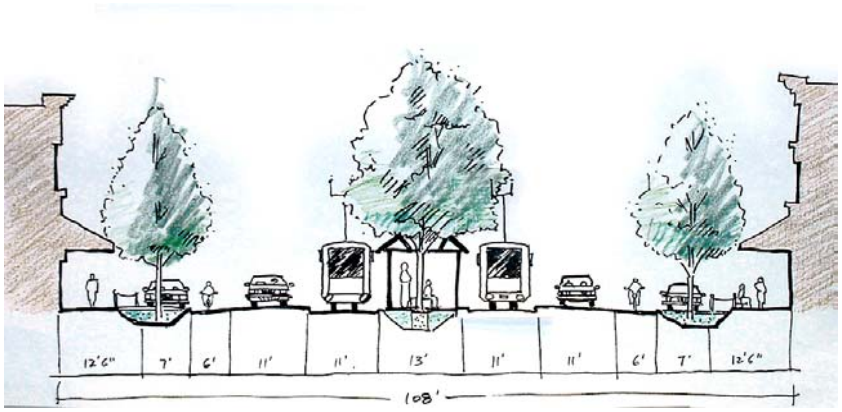
Existing Street System. *The road network is formed, on the one hand, by the original agricultural grid, and, on the other, by a street pattern that follows the natural contours of the landscape.*

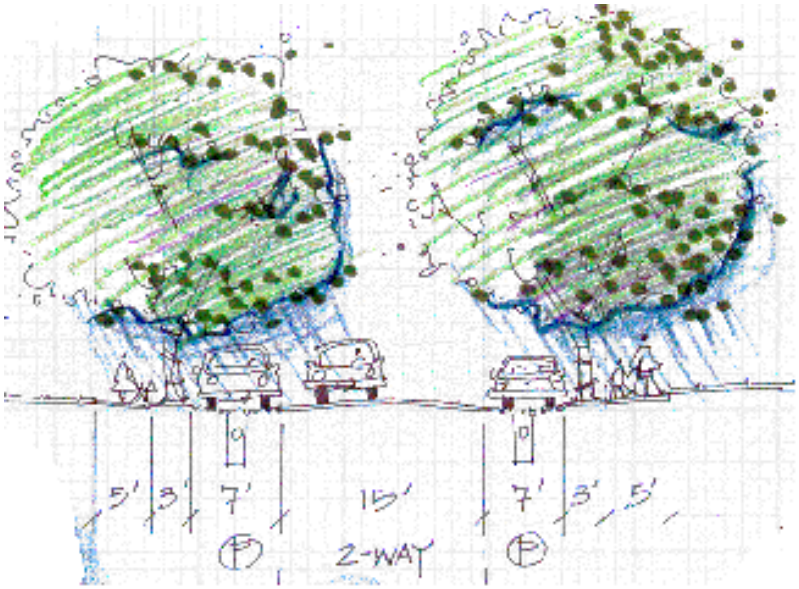


First concept for new street system. *Thick red lines denote major streets; thin red lines denote medium capacity streets; dotted line denotes a possible Southern Parkway alignment. The agricultural grid and the 600 X 600 ft. block increment was used as a basis for expanding the street network. Existing east-west connections along the existing 212 and 224 corridors are supported by an additional east-west connection to the north of highway 212. North-south routes are strengthened to accommodate the increase in demand and to increase interconnectivity through the site.*

Street Prototypes

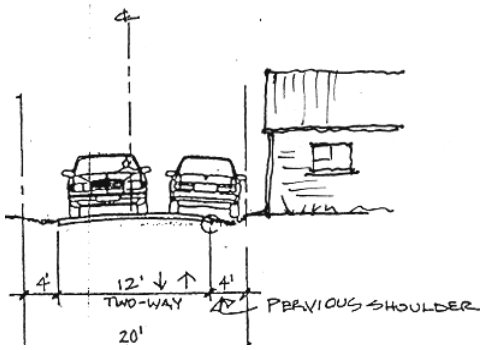






Above: Main Street prototypes. *Slower speeds, on-street parking, and buildings pushed to the sidewalks make for a lively and pedestrian-oriented Damascus Main Street. On the right, a wider right-of-way accommodates a streetcar, proposed for the primary east-west spine (currently, Highway 212).*

Left: Local Street prototype. *A 45 ft. right-of-way handles two way traffic on old fashioned take your turn "cuing" street, on street parking on both sides, sidewalks on both sides of the street; and many planted trees. Parking areas double as infiltration trenches that absorb runoff from the road surface. Service and garage access to homes on these streets is via rear alleys to make the sidewalks safer for pedestrians and to allow more room for parking.*



Section of a typical alley

Alleys for All Higher Density Blocks

The Go Team examined how this prototypical block would work for various housing types, how much pavement would be required to provide car access, and how pedestrian activity could be given the priority demanded in the design brief. The team concluded that for all blocks with a gross residential density of over 8 dwelling units per acre or mixed-use blocks with floor/area ratios of 0.7 or higher, cars and services should be handled at the back of the lot, accessed by an alley. Alleys would be constructed of low impact materials such as pervious pavement or crushed stone. Use of driveways at densities higher than 8 du/acre would add excessive amounts pavement to the landscape (in the form of two- and three-car wide driveways), create a landscape of “snout houses,” and make sidewalks unsafe for children.

Green Streets for All Streets

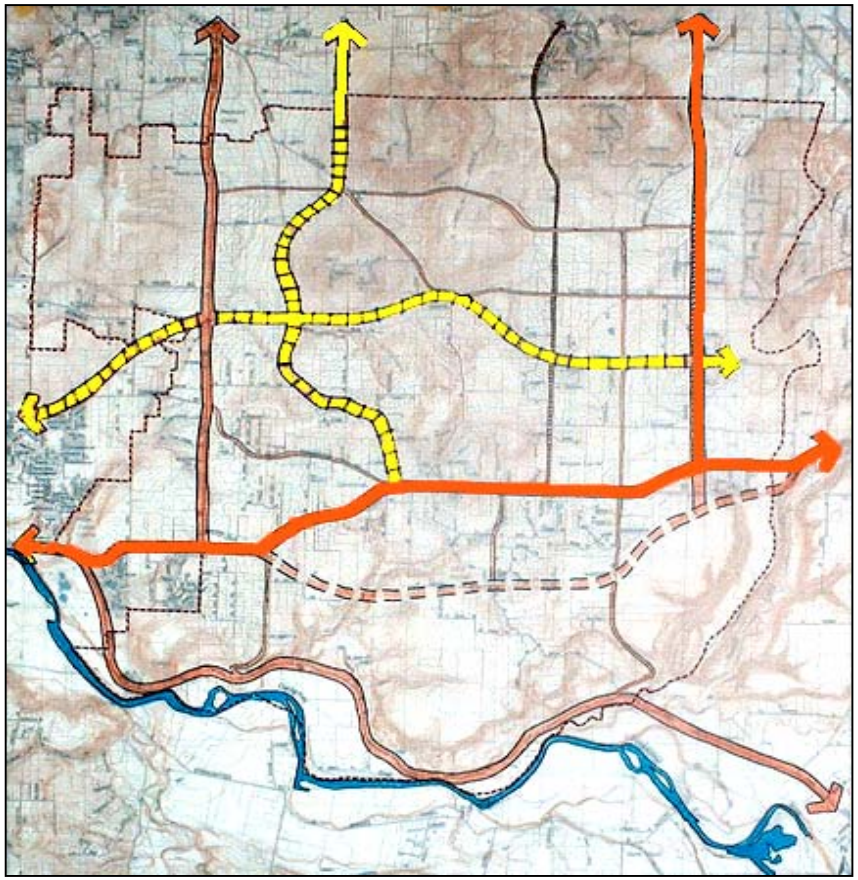
With the street network chosen, the Go Team devised a strategy to reduce the impact of paved street surfaces on watershed function. Given the density targets set out in the design brief, even narrowed streets would cover over 25% of the total acreage of developed areas. If this much impervious surface were drained into nearby streams via conventional storm drain systems, the streams and their fish would be destroyed. The Go Team decided that this impact could only be avoided if all streets in the watershed were “green streets,” built in conformance with Metro’s emerging “Green Streets" standard.[6]

The plan assumes that all streets will be “self mitigating,” in that they infiltrate 90% or more of the rainwater that was absorbed by site soils prior to development. [7]

Minimize Stream Crossings. Where Stream Crossings are Necessary Use Narrow Bridges

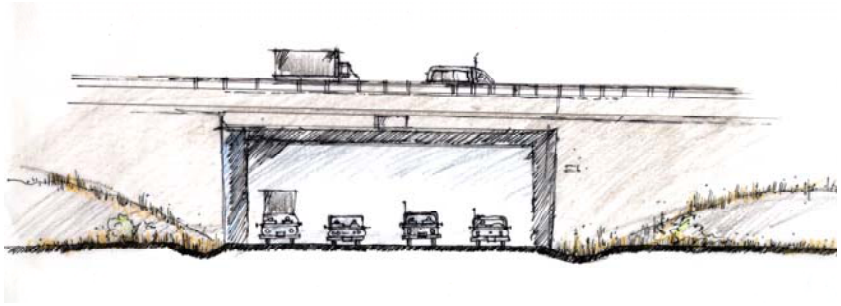
Reducing the impact of road systems on watershed hydrology by 90% will not guarantee habitat health if riparian zones are not protected. Typical street crossings can devastate a riparian stream corridor. Certainly, the fewer the crossings, the less the damage. However, significant gains to riparian protection that would result by limiting stream crossings could be offset by the increases in automobile congestion and increased trip distances that would result by limiting the interconnectivity of the street system. The Go Team proposed a solution for overcoming this seeming contradiction. Stream crossings would be reduced, but not beyond the point at which interconnectivity would be compromised. The standard used by the Go Team was 1,200 feet (or two blocks or a five minute walk) maximum distance between crossings. For local roads with trip rates of fewer than 1,500 trips per day (about two cars per minute on average during the daytime), these crossings would take the form of one-lane “take your turn” bridges, a form of bridge common on even high volume state highways prior to WWII. These very narrow bridges could be "inserted" through the preserved canopy of the riparian zone without opening up the tree canopy of the corridor and exposing fish to the harmful

Proposed Trails and Greenways



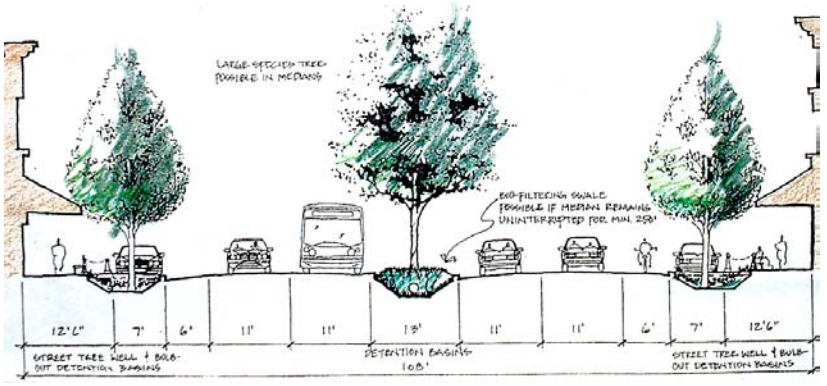
Proposed Transit Routes: *Yellow lines denote streetcar routes; the orange line indicates high frequency bus routes.*

Not This



An eight-lane, limited access, grade separated Sunrise Corridor is a high cost option with substantial ecological impact. However, the same capacity can be accommodated on a network of Parkways and Boulevards, shown below and at right. These alternative corridor types can yield substantially higher social and ecological benefits than the option above.

But This



A Main Street boulevard, like the one above, is a more urban alternative to the freeway option at left. Four travel lanes accommodate a high capacity of traffic and a diversity of travel modes. Parking on the street, trees planted in infiltration boulevards and shallow building setbacks keep speeds moderate and encourage pedestrian activity.

And This

In the less urban areas of the site, a Parkway handles as many cars per hour as the freeway option(albeit at more moderate design speeds) but in a way more in keeping with the special character of Damascus. A wider central boulevard becomes an artificial stream corridor that handles runoff, replenishes the water table and provides islands of foraging areas for birds and other small creatures.

heat of the sun. Construction specialists on the Go Team predicted that one lane pre fabricated concrete bridges spanning top of bank to top of bank (within a protected riparian canopy zone) could be constructed for less then $50,000 – a considerable sum, but not by itself an impractical amount, especially if other green street economies (such as reduced road widths and crushed stone paved lanes for example) were incorporated into site servicing requirements.

A Parkway Runs Through It

By far the most contentious issue confronted by the Go Team was that of the Sunrise Corridor Freeway proposal. This proposal for linking Highway 26 to Interstate 205 has been debated for 25 years with no resolution in sight. After continuing this debate in the design workshop, the members of the Go Team coalesced around a proposal, not for a limited access *grade separated freeway*, but rather for a controlled access *surface parkway*. Go Team members felt that such a roadway could be built at a fraction of the cost of a freeway, carry as many cars per hour at 45 m.p.h. as a freeway designed for 65 mph, more easily incorporate Green Streets standards, provide a better setting for integrating industrial, commercial, and residential land use functions, and accommodate transit and pedestrian activities more easily than a freeway.

A Parkway to Connect Pleasant Valley to Sunshine Valley through Rock Creek Notch

The Go Team concluded that the Sunrise Parkway solution would not, in itself, provide adequate east-west access for the community if additional corridors were not also

provided. A line of buttes form a natural separation between Pleasant Valley on the west and Sunshine Valley on the east. These attractive landscape features also created a serious barrier to east west connection. There was one quite obvious place to breech the line of buttes: at the Rock Creek notch where Rock Creek originates. Unfortunately this area also showed up in many of the documents as a sensitive habitat and watershed area. Considerable debate ensued between and within teams on the feasibility of a cross connection at this point. In the end, workshop participants agreed that it would be possible to build a low impact parkway connection in such a way that environmental damage could be minimised if appropriate engineering specifications were applied.

A complete and varied movement system centered on "Trolley Car Arterials"

The basic elements of the movement system proposed by the Go Team are outlined below.

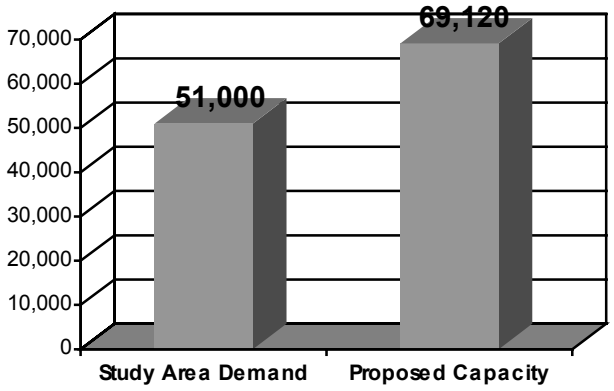
Roads
2 Parkway Road at 45 mph
6 Major roads at 35 mph

Transit
1 E/ W Sunnyside Street car
1 N/ S Foster Streetcar
2 10- minute frequent bus (172nd and 242nd)

Bike/ Walk
25 miles of pathway
24 miles of on- road/ sidewalk

All residents in this system would be within a ten-minute walk of a fast bus or "trolley car arterials," a road type characterized by a mixture of movement types (such as trolley,

Transit Capacity



bus, car, delivery, walking, biking) occurring on the same corridor and mixed land use (i.e., residential, office, commercial, institutional) on both sides of the street. In the minds of the participants, this integration between land use, human activity, and transportation would ensure that citizens of all ages and incomes could get where they needed to go and that the transit system would be well used and affordable.

What the Numbers Say

While in no way an extensive analysis, Go Team members were able to use Metro's basic transportation demand modeling algorithms to evaluate their proposals. As the charts show the interconnected system of parkways, mixed-use arterial roads, and local roads show a capacity in excess of demand. On the transit side, the same model showed that the proposed streetcars and rapid buses would be well utilized, as the model indicated more riders than comfortable capacity