

Alley Maintenance and Policy

Briefing to the City Council

February 6, 2002

Briefing Purpose

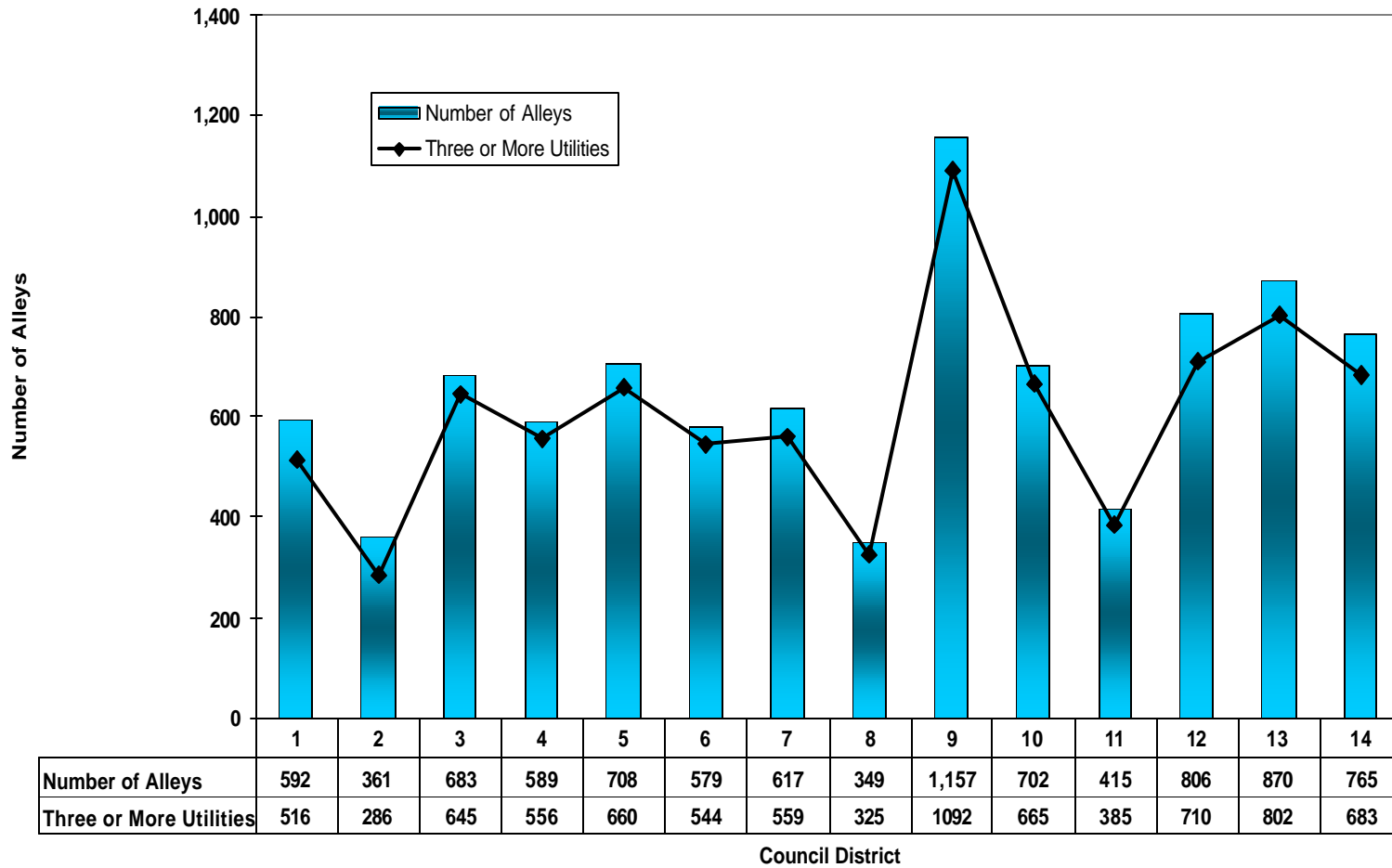
- Review current alley standards, conditions, and maintenance
- Outline future directions and policy decisions
- Discuss recommendations for the 2002 Bond Program

Uses of Alleys

- Why do we have alleys?
 - Required in residential developments based on street pavement width and zoning density
 - Developer preference
 - Utility easements
 - Drainage
 - Garbage collection
 - Garage entry
- 62% of street segments abut alleys

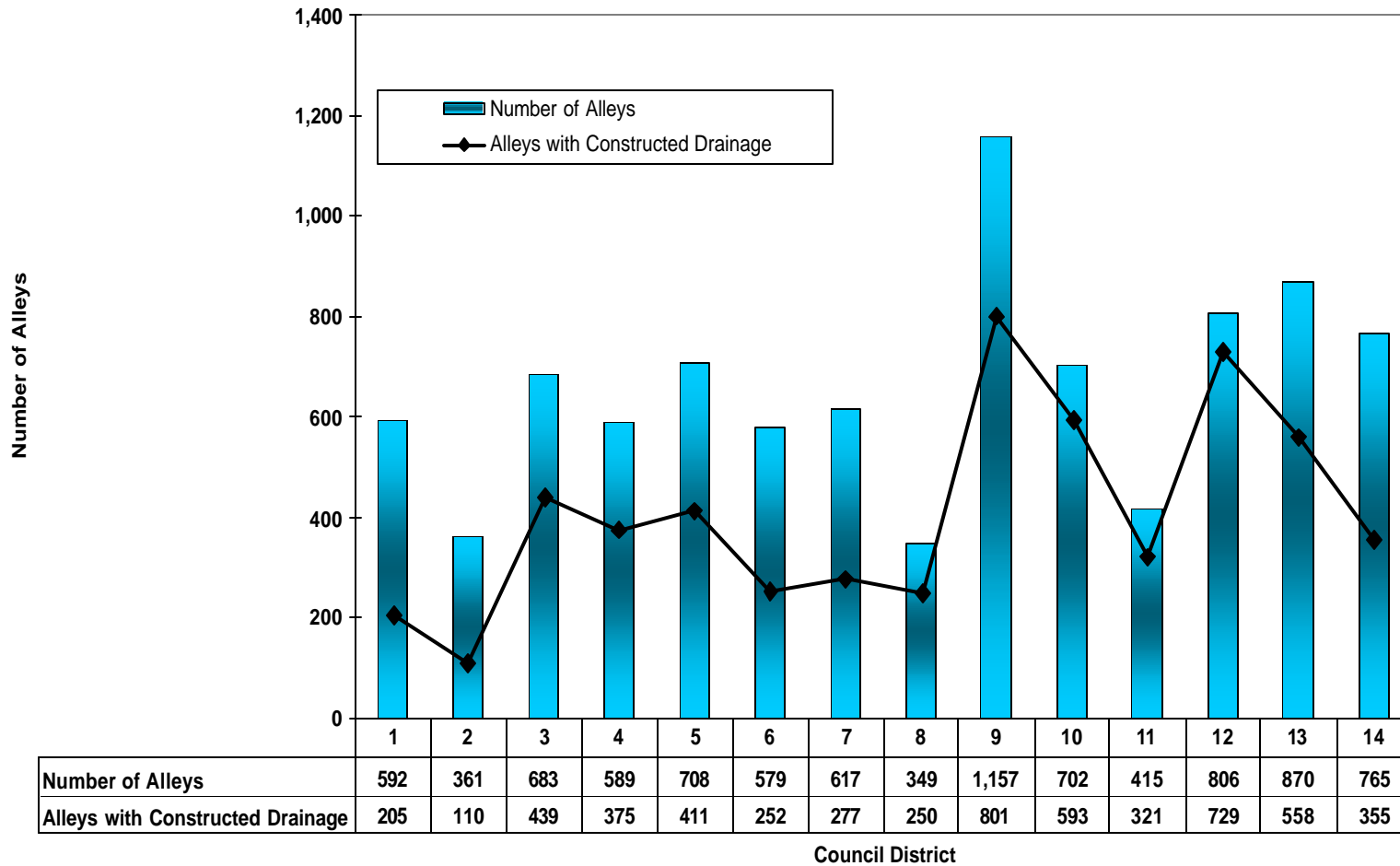
Utilities in Alleys

95% of alleys have at least one utility



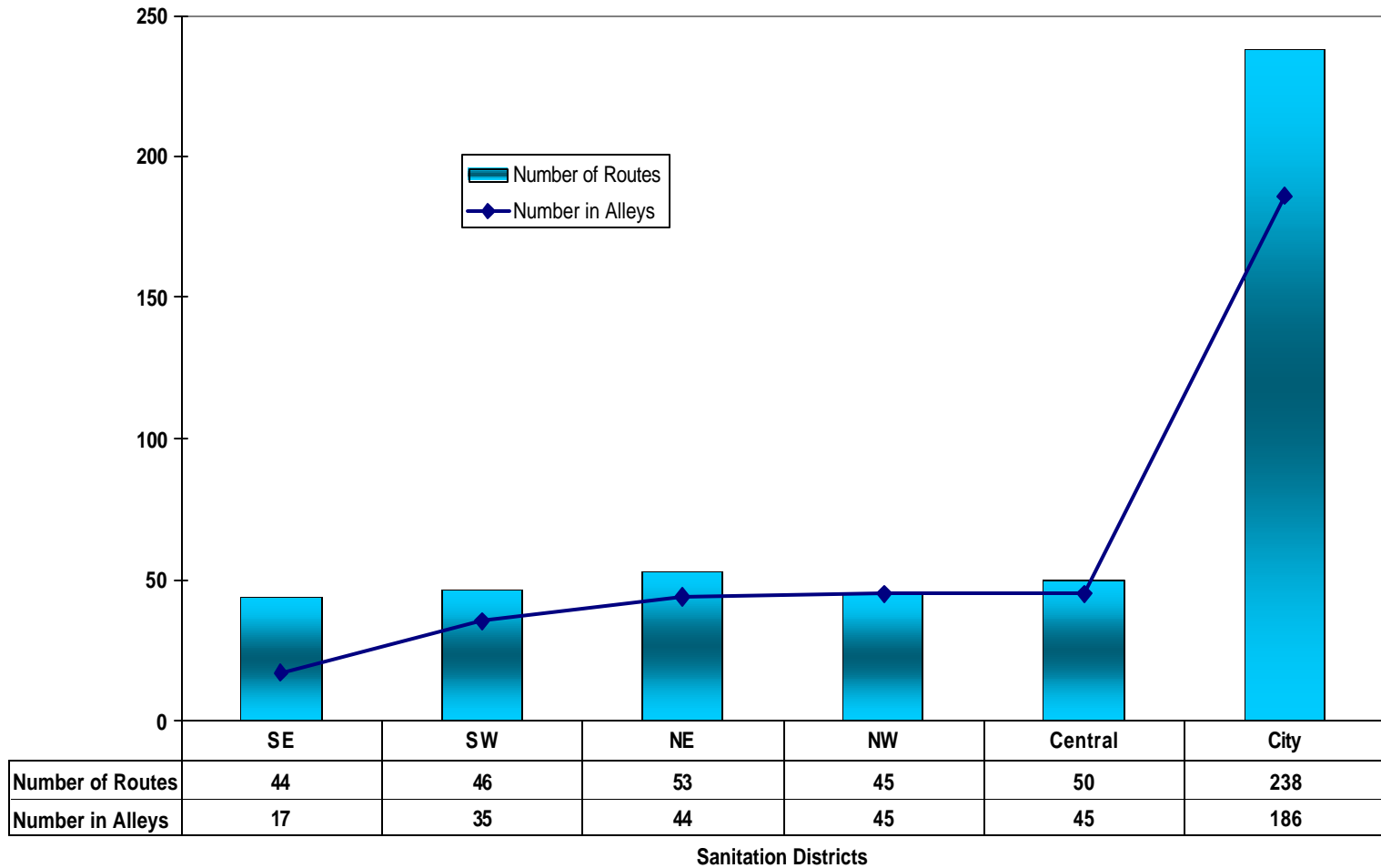
Alleys with Constructed Drainage Systems Inverts, Inlets, Channels or Flumes

62% of all alleys have constructed drainage systems



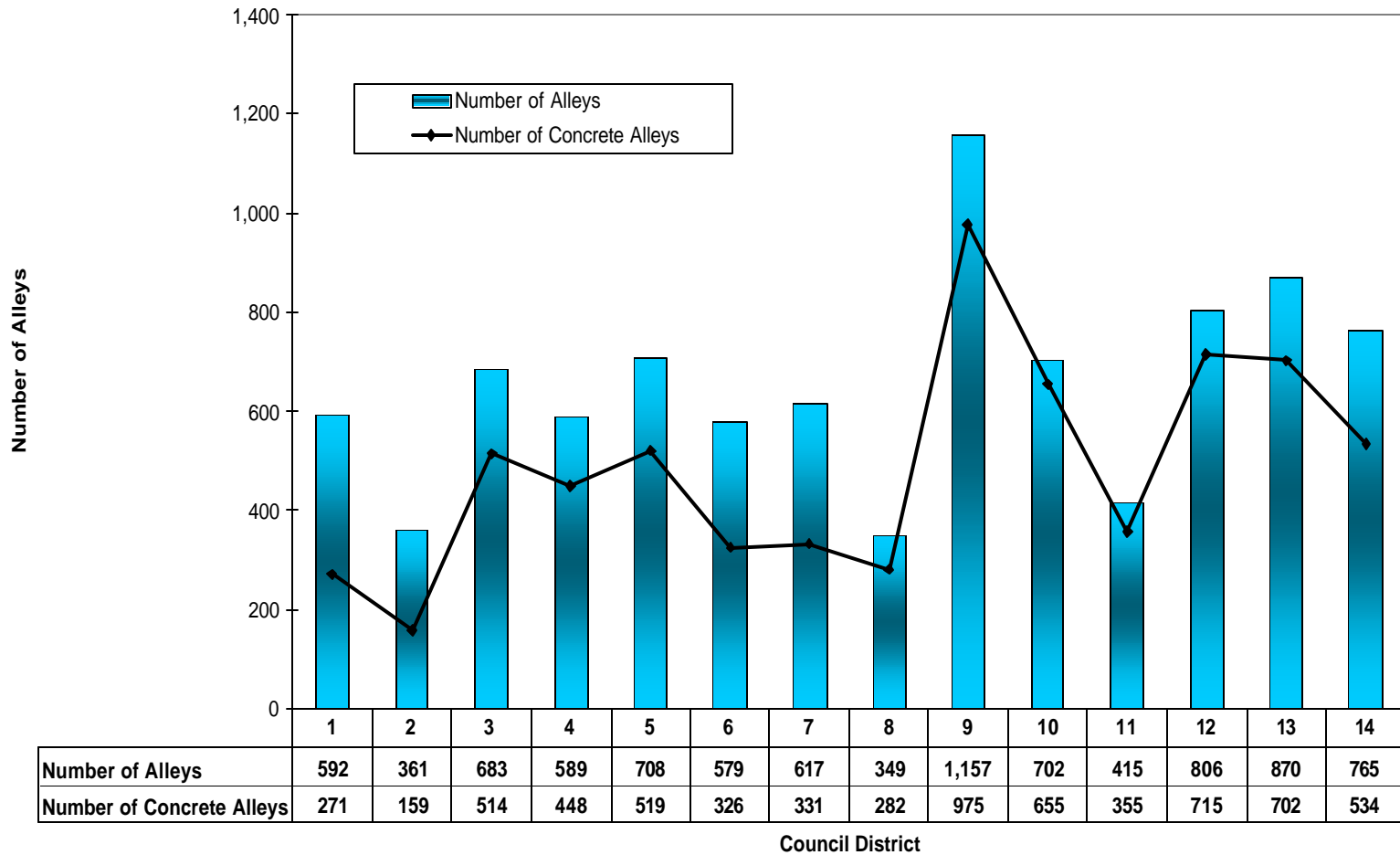
Sanitation Collection in Alleys

About 50% of all customers are collected in alleys
Almost all routes are in alleys part of the time



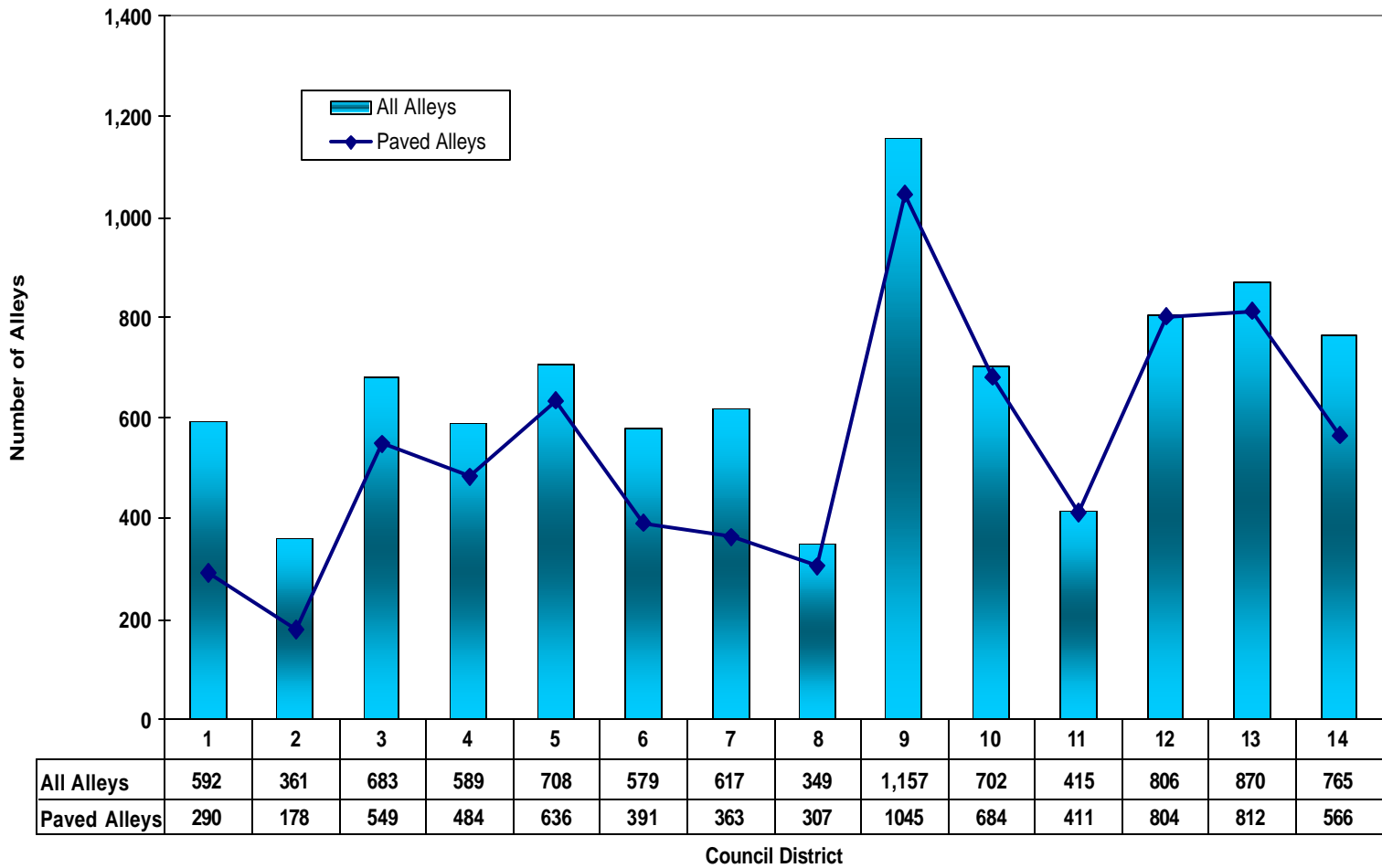
Alleys with Concrete Surfaces

74% of all alleys have concrete surfaces



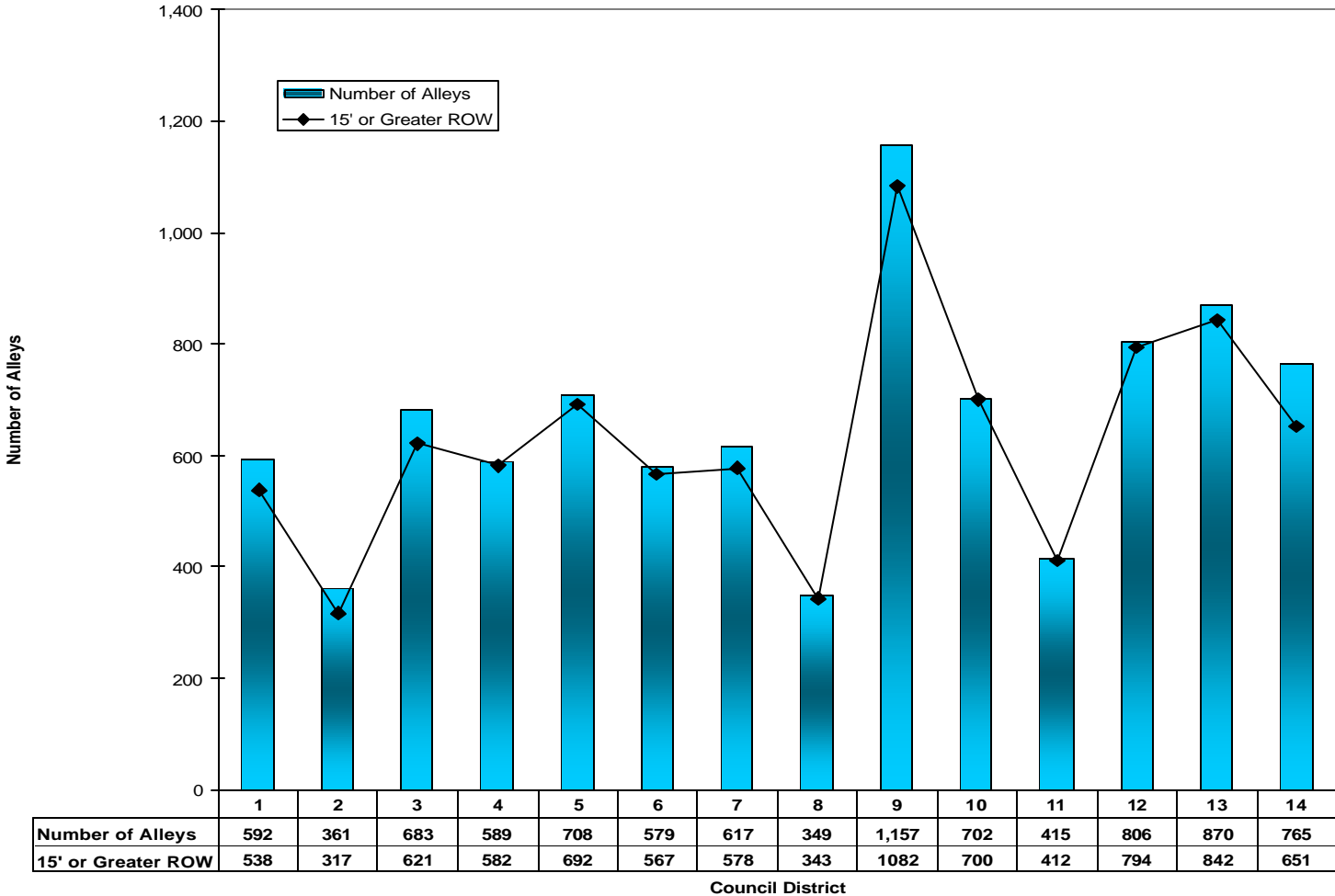
Number of Paved vs Unpaved Alleys

84% of all alleys are paved



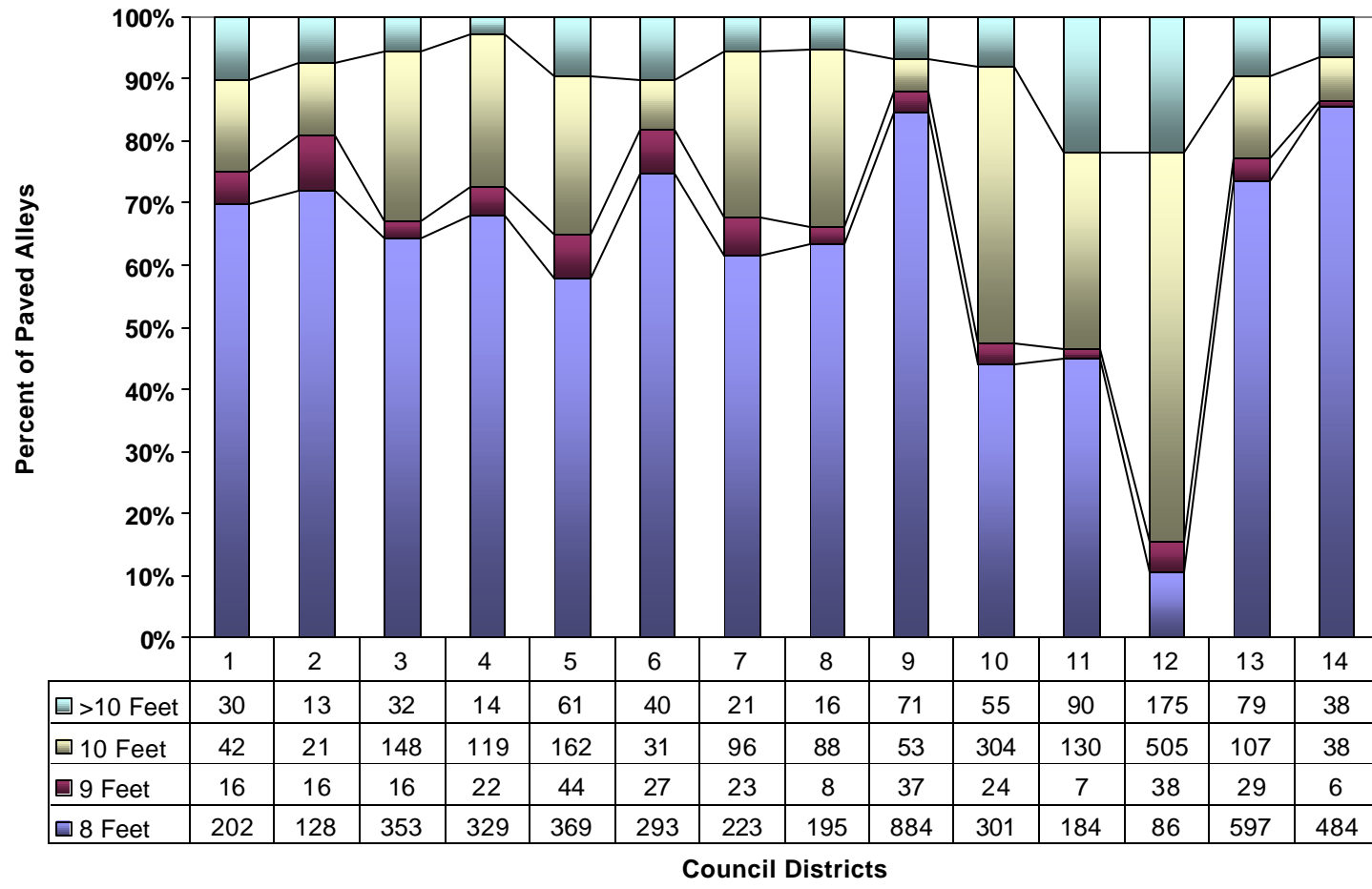
Right-of-Way Width All Alleys

95% of all alleys meet the current design standard of 15'



Pavement Width Paved Alleys Only

34% of paved alleys meet the current design standard of 10'

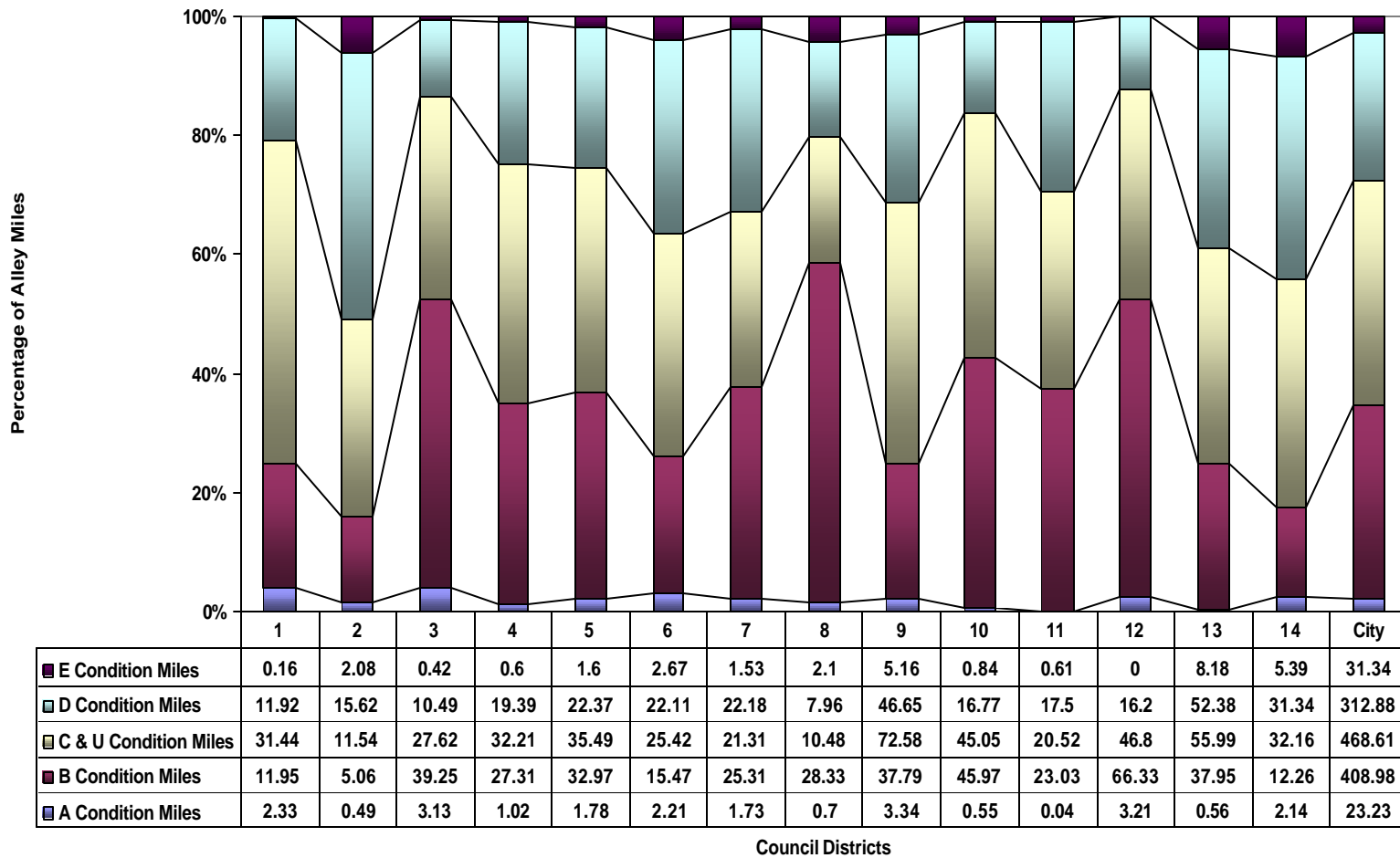


Inventory Program and Alley Conditions

- Annual systematic citywide alley inventory since 1999
- Overall condition rating based on subjective drive-by assessment
- Each segment is assigned a condition code "A" through "E", like in the street inventory system

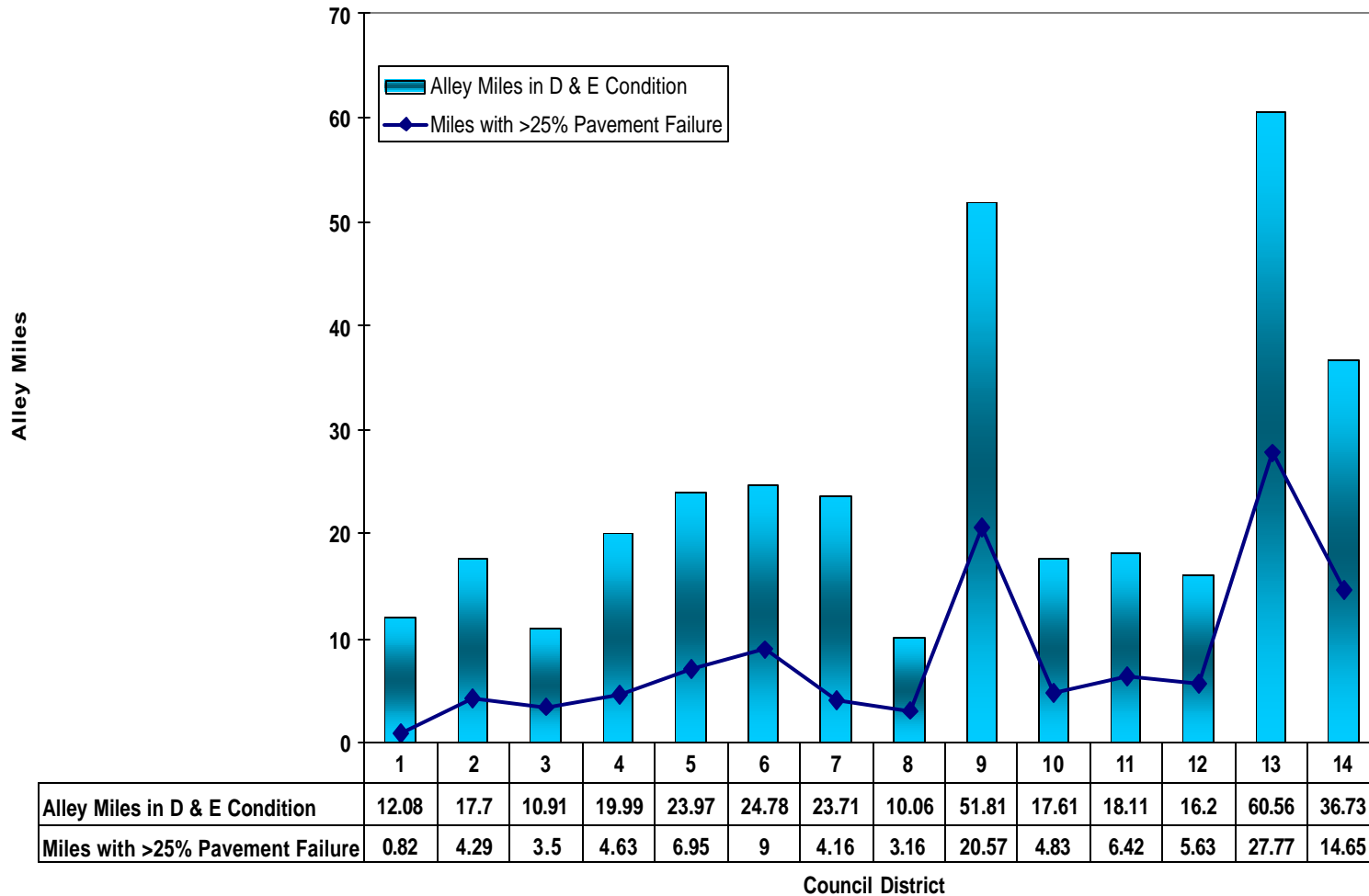
2000 Alley Surface Condition Survey

72% of alley miles are in Satisfactory Condition



D&E Condition – Extent of Pavement Defects

34% of D&E miles have $\geq 25\%$ defective pavement



Alley Design Standards

- Over time, alleys have been built to varying standards, the biggest change being in pavement width
 - 8 foot wide alley pavement standard adopted in April 1964
 - 9 foot wide standard adopted in July 1980
 - 10 foot wide standard adopted April 1990

- Right-of-Way changes
 - Prior to 1964, some alleys were built with less than a 15 foot right-of-way.
 - Since 1964, the City's standard has been 15 feet
- Surface standard changed to concrete in mid-1970s
- Current design standard projects a 30 year pavement life

- Criteria for alley design
 - The criteria are based on vehicle operating characteristics and dimensions standards
 - All curves, turnouts, etc. in residential alleys must conform to the minimum turning radius for a garbage truck
 - Alleys built in commercial areas are designed to accommodate larger collection vehicles

Alley Maintenance Issues

- Causes of surface wear
 - Traffic
 - Weather
 - Poor drainage
 - Soil condition
 - Swimming pool back wash
 - Trees and other vegetation
 - Poor utility cut repairs
 - Lower construction design standards in previous years

- Garbage Truck Traffic
 - Based on various engineering load analyses, the automated garbage trucks will deplete the life of alley pavement faster than a rear loader garbage truck, primarily due to the frequency of trips
 - Since automated garbage trucks have been in use for a short time, pavement deterioration in the main portion of the pavement from automated garbage trucks may not yet be apparent

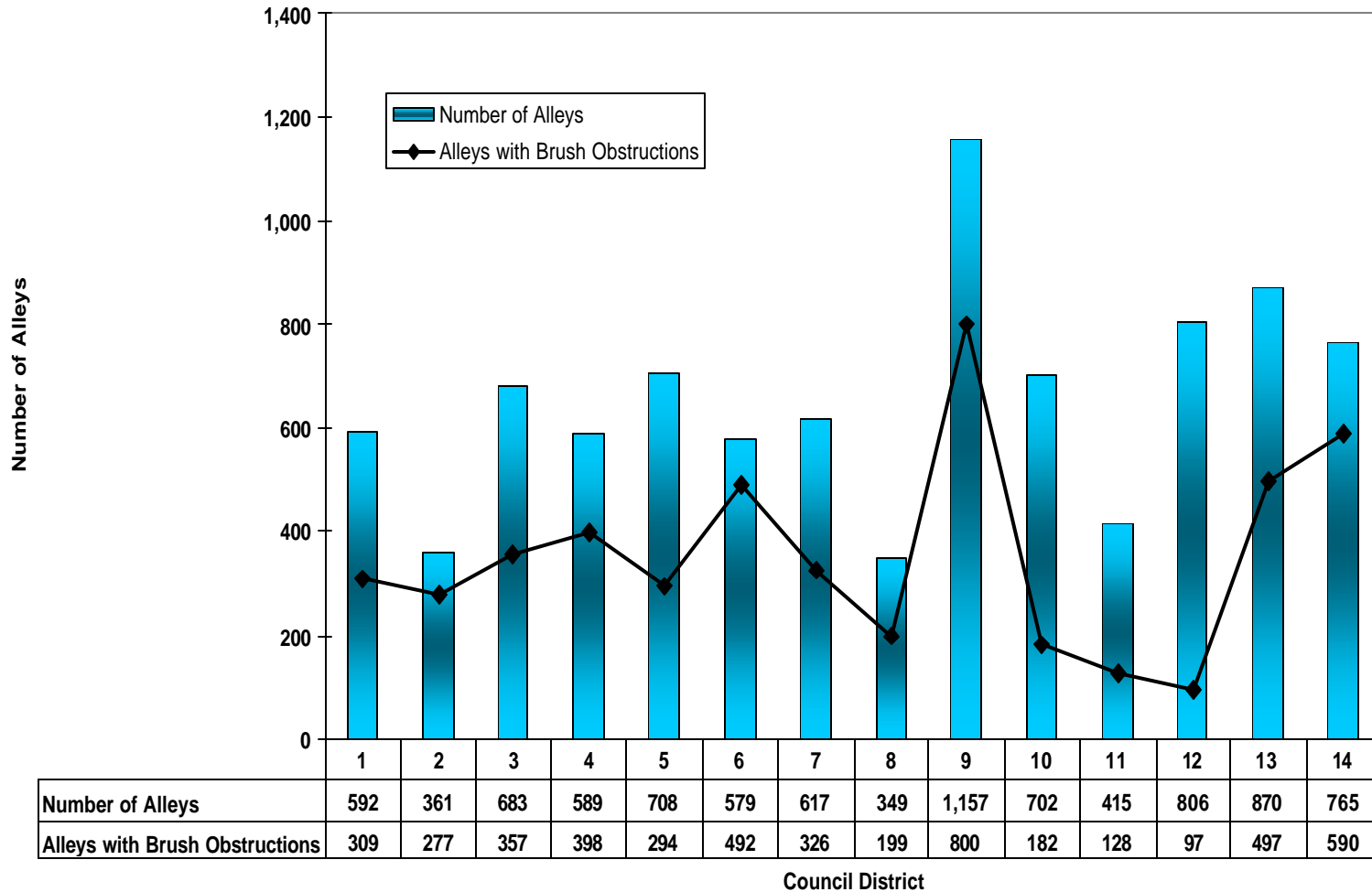
- Off-Pavement Rutting

- From staff observations, a significant amount of off-pavement rutting is caused by automated trucks maneuvering to pick up the can and occurs on pavements less than 10 feet wide
- Vehicles running off of the pavement cause the edges to deteriorate and surface cracking to occur
- 95% of all off-pavement rutting is beside an 8' or 9' pavement

- Encroachments
 - Overgrown vegetation (side and above)
 - Fences and buildings
 - Utility appurtenances (poles, switch boxes)
 - Owner responsibility to remove
 - Enforced by Department of Code Compliance

Alleys with Brush Obstructions

54% of all alleys had brush obstructions



Alley Maintenance Issues

- Alley miles with greater than or equal to 25% defective pavement
 - Asphalt surfaces – 22.5 miles
 - Concrete surfaces – 94.9 miles
- Routine maintenance includes repairs to pavement, shoulders, and drainage infrastructure and is done by Streets

- Off-Pavement Rutting
 - Simple repairs: done by Sanitation
 - Alley clips and pavement repairs: done by Streets

Alley Maintenance

- Average estimated cost for repair (10' wide)
 - Reconstruction - \$900,000 per mile
 - Partial reconstruction – Average of \$88,000 per mile, but can vary widely
 - Grading and flexbase in unimproved alleys - \$1,400 per mile
 - Pothole repair, routine - \$10 per square yard
 - Construction cost for widening - \$8 to \$15 per square foot, depending on complexity

- Current alley surface maintenance budget
 - General Fund maintenance
 - 2001-02 budget is \$1.85 million, including \$400K specifically to address Sanitation concerns
 - Capital programs
 - The 1998 Bond Program averaged \$1.56M in alley reconstruction and petition projects annually over four years for a total of \$6.3 million

- Priority options for alley maintenance
 - Rear entry garage alleys (52% of all alleys)
 - Commercial access alleys (6% of all alleys)
 - Alleys currently used for Sanitation collection (79% of all alleys, including rear entry)
 - All alleys

Future Directions

- The current capital needs inventory contains projects estimated to cost:
 - Over \$170 million for alley reconstruction
 - About \$2.6 million for 23 alley petition projects
- Paving all unpaved alleys would cost about \$158 million

- When DWU reconstructs an alley after water or sewer line repair, the alley is reconstructed to its previous pavement width
 - Alleys could be reconstructed to current standard if DWU funds are supplemented by GO bonds
 - Only if ROW is available
- DWU expects to reconstruct about 37.1 miles of alley over the next three years that could be reconstructed to a 10' width depending on available ROW

- When feasible, abandon unused alleys
 - All abutting owners must participate or quitclaim their interest

 - Costs to property owners (\$1,500 cost per house in average neighborhood)
 - Abandonment application fee
 - Survey
 - Appraisal
 - Fair market value of abandoned property
 - Costs of moving fences and adjusting landscaping

 - Possible future problems with utility access

- Continue and enhance routine maintenance of all alleys with a priority for those that serve rear entry garages or allow commercial access
- Since most of the alley pavement is concrete, consider increasing the budget to fund five additional concrete crews dedicated to alleys (First year additional costs of \$2.2million for an additional 27 alley miles repaired per year)

- Determine what to include in the 2002 bond program for alleys
 - Reconstruct about 12 miles of alleys highest ranked in Tier 1 (\$10.8M)
 - Supplement DWU reconstruction of alleys to widen them by one to two feet where possible (\$1.84M)
 - Alley petitions for 23 alleys (\$2.6M)

Appendix A Alley Condition Inspection Program

- Systematic citywide alley inventory
- Alleys inspected annually
- Alley inventory of physical features since 1999
- Overall condition rating based on subjective drive-by assessment
- Data collected
 - Surface type and length
 - ROW and pavement width
 - Pavement surface condition (visual rating)
 - Worst condition in segment determines the rating assigned to the entire segment
 - Utility uses
 - Traffic uses
 - Obstructions
 - Council District, census tract, etc.
 - Detailed pavement distress data
- Each segment of alley is assigned a condition code:
 - A - Good
 - B - Acceptable
 - C - Fair
 - D - Poor
 - E - Unacceptable
 - U - C or better condition except for poor utility cut repair
- Satisfactory condition alleys are those in A, B, C and U condition.
- Unsatisfactory alleys are those in D or E condition.

Appendix B

1998 Bond Program Streets and Thoroughfares Proposition

STREET AND THOROUGHFARE IMPROVEMENTS - \$125.025M

These projects include transportation systems management, participation with other agencies for improvements to intersections and thoroughfares, street resurfacing, street petitions, street reconstruction, local collectors, sidewalks, thoroughfare improvements, alley petitions, alley reconstruction, participation with other agencies for improvements to alternate modes and bridge repair and modification.

TRANSPORTATION SYSTEMS MANAGEMENT PROJECTS – \$1.4M

Provides for the installation of new traffic signals and school flashers where warranted, replacing structurally deficient traffic signal hardware and installing Intelligent Transportation System devices to improve traffic flow.

PARTICIPATION WITH OTHER AGENCIES/INTERSECTION PROJECTS - \$.654M

Provides improvements for turning movements, adding auxiliary turn lanes, or increasing storage capacity at designated intersections using matching funds from other agencies.

PARTICIPATION WITH OTHER AGENCIES/THOROUGHFARE PROJECTS - \$8.748M

Provides for the improvement of substandard or over-burdened city thoroughfares to current city standards including safety, lane width and pavement thickness by using matching funds from other agencies.

STREET RESURFACING PROJECTS – \$25.53M

Provides for design and construction of streets, which need resurfacing. Resurfacing consists of removal of previous asphalt overlays, repairs to base pavement, curb, gutter, and sidewalks where needed and placement of new or recycled asphalt overlays and traffic markings, as necessary.

STREET PETITION PROJECTS - \$24.889M

Provides for engineering and construction of street paving petition improvements requested by property owners through the Property Owners Cost Participation Program (POCPP). Petitions must represent a two-thirds majority of the abutting property owners and/or residents adjacent to unimproved streets for a valid paving petition. Property owners are assessed for a portion of the cost.

STREET RECONSTRUCTION PROJECTS

Provides for engineering and construction of streets that have exceeded their structural life expectancy.

LOCAL COLLECTOR PROJECTS - \$7.597M

Provides for improving substandard or over-burdened local collector streets to current city standards including safety, lane width, and pavement thickness.

SIDEWALK IMPROVEMENTS - PETITIONS, SAFETY AND REPLACEMENT PROJECTS - \$3.324M

Provides for engineering and construction of sidewalks at various locations. This program consists of three categories: Sidewalk Petitions - Requested by two-thirds majority of property owners signing petitions under the Property Owner Cost Participation Program (POCPP), Citizen Safety Advisory Committee Recommendations - Requested by local schools for the safety of school children, and Sidewalk Replacement - Requested by property owners for replacement of deteriorated sidewalks, drive approaches, curbs and gutters under the cost participation program.

THOROUGHFARE IMPROVEMENT PROJECTS - \$29.834

Provides for improving substandard or over-burdened city thoroughfares to current city standards including safety, lane width and pavement thickness.

ALLEY PETITION PROJECTS – \$3.932M

Provides for engineering and construction of alley paving through petitions from the Property Owners Cost Participation Program (POCPP). Petitions must represent a two-thirds majority of the abutting property owners and/or residents adjacent to unimproved alleys for a valid paving petition. Property owners are assessed for a portion of the cost.

ALLEY RECONSTRUCTION PROJECTS - \$2.387M

Provides for engineering and construction of alleys that have exceeded their structural life expectancy.

PARTICIPATION WITH OTHER AGENCIES/ALTERNATIVE MODES PROJECTS - \$.3M

Provides funding for alternate transportation improvements such as separate bike routes, signage, or parking facilities with matching funds from other agencies.

BRIDGE REPAIR AND MODIFICATION - \$3.0M

Provides funding for bridges needing repair, construction and replacement.

In Summary, the 1998 Bond Program included \$125 million for Streets and Thoroughfares

- \$6.3 M for alley reconstruction and petition paving
- \$110 M for street construction and resurfacing
- \$3.3 M for sidewalk improvements
- \$3 M for bridge repair and modification
- \$2.4 M for transportation management, intersections and alternate modes

Appendix C Enhanced Maintenance Program

The current year budget funds five asphalt repair crews and five concrete repair crews.

An additional \$2.2 million is recommended in FY 2002-03 to fund five additional concrete crews to allow more permanent repairs to take place.

The budget and expected production for 2002-03 reflects one-time start up costs and a phase in of new employees.

Two crews will be deployed by January 1, 2003. An additional three crews will be deployed by March 1, 2003.

The budget reflects the costs of purchasing most major equipment. Equipment will be rented on the schedule for deploying crews until purchased equipment is estimated to be received. The budget includes funds for maintenance of purchased equipment by Equipment and Building Services.

Each concrete crew consists of five people.

Existing asphalt crews can be used to repair asphalt alleys and temporary repairs of hazardous conditions in concrete alleys.

Concrete repairs are longer lasting and there will be less need for re-repairs of temporary fixes.

Concrete crews will be assigned asphalt and grading work when it is too cold to pour concrete.

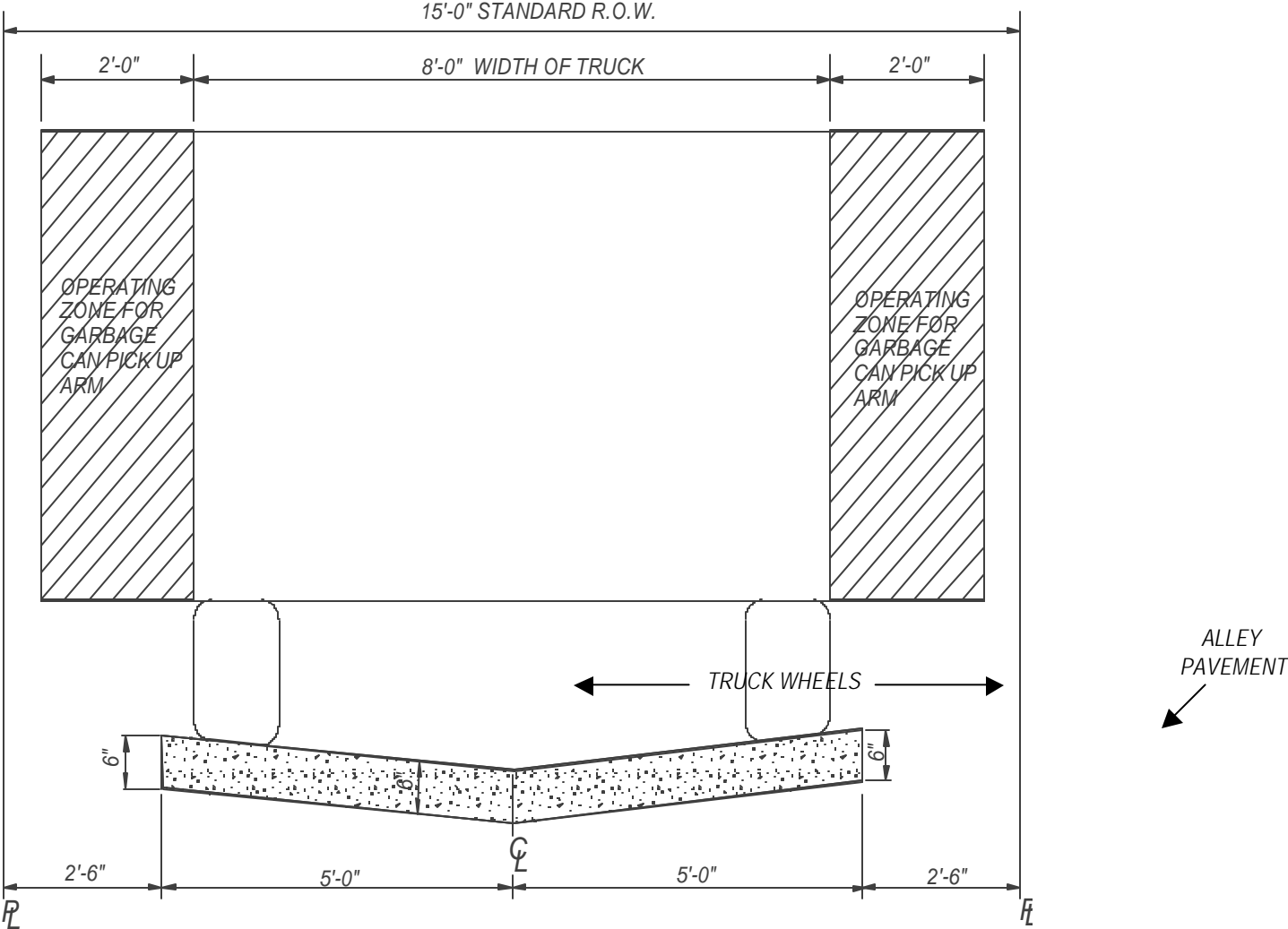
The following chart summarizes the additional costs and expected production:

		Alley Miles Repaired			
Year	Budget	Concrete	Asphalt	Unimp	Total
2001-02	1.8 M	33	151	107	291
2002-03	4.0 M	60	151	107	346
2003-04	3.4 M	70	151	107	365

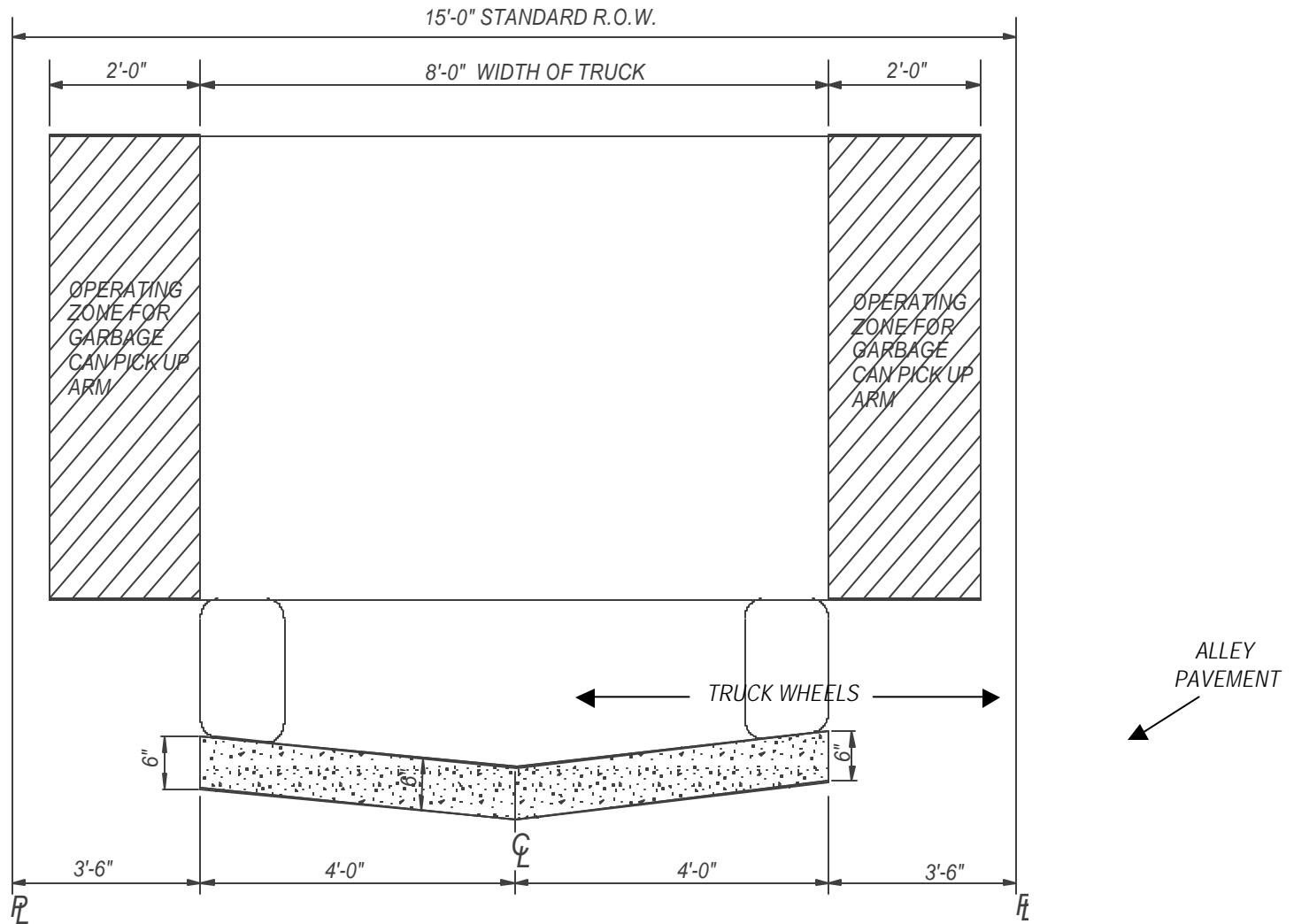
Attachment D
Standard Construction Details for Alleys

- The following pages show both the current alley design width and the old alley design width from 1964 to 1980.
- These cross-section views show the area necessary to accommodate the operating characteristics and vehicle dimensions of the automated garbage truck.

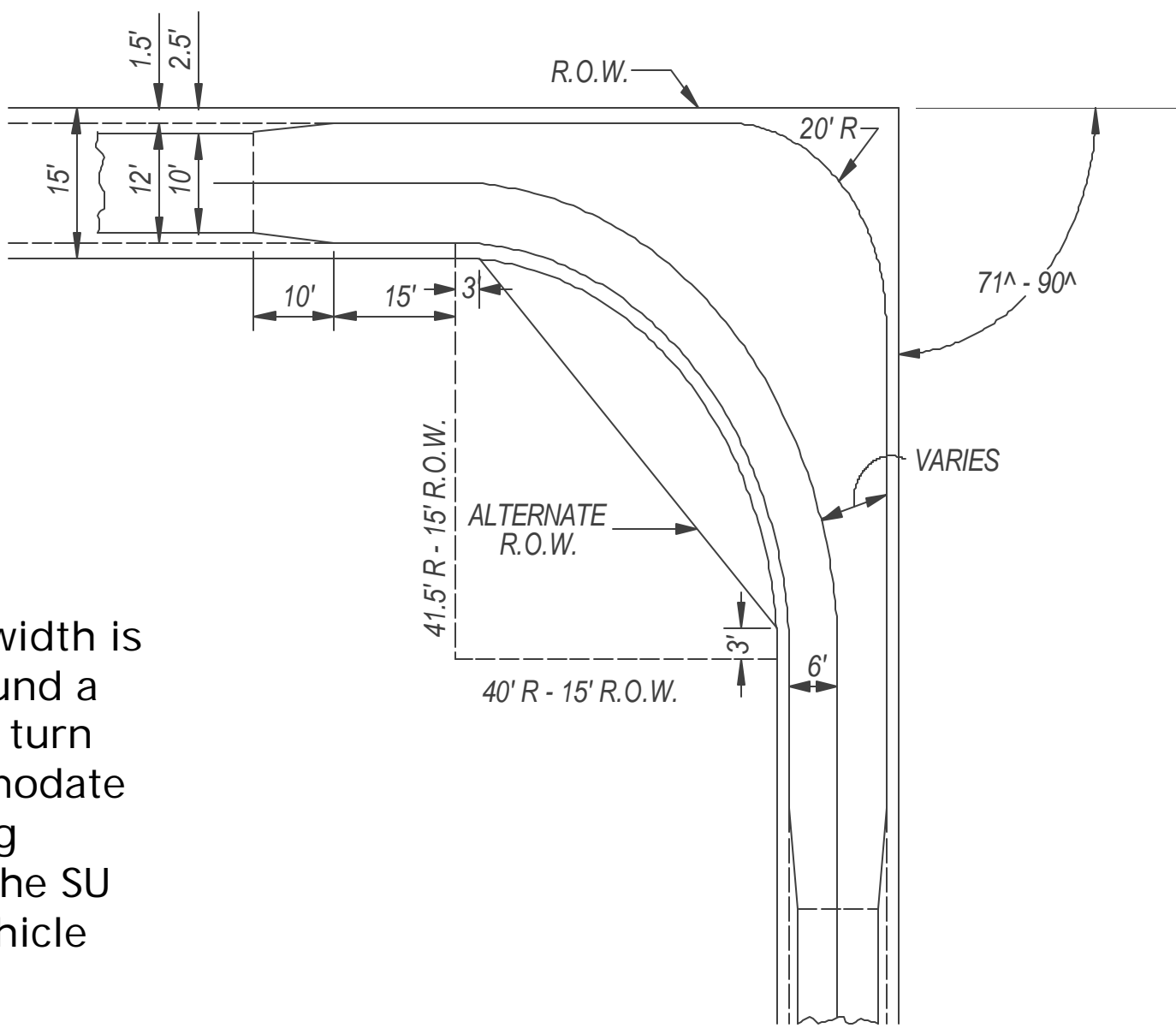
Operating Dimensions of Automated Garbage Truck on the Current Alley Design



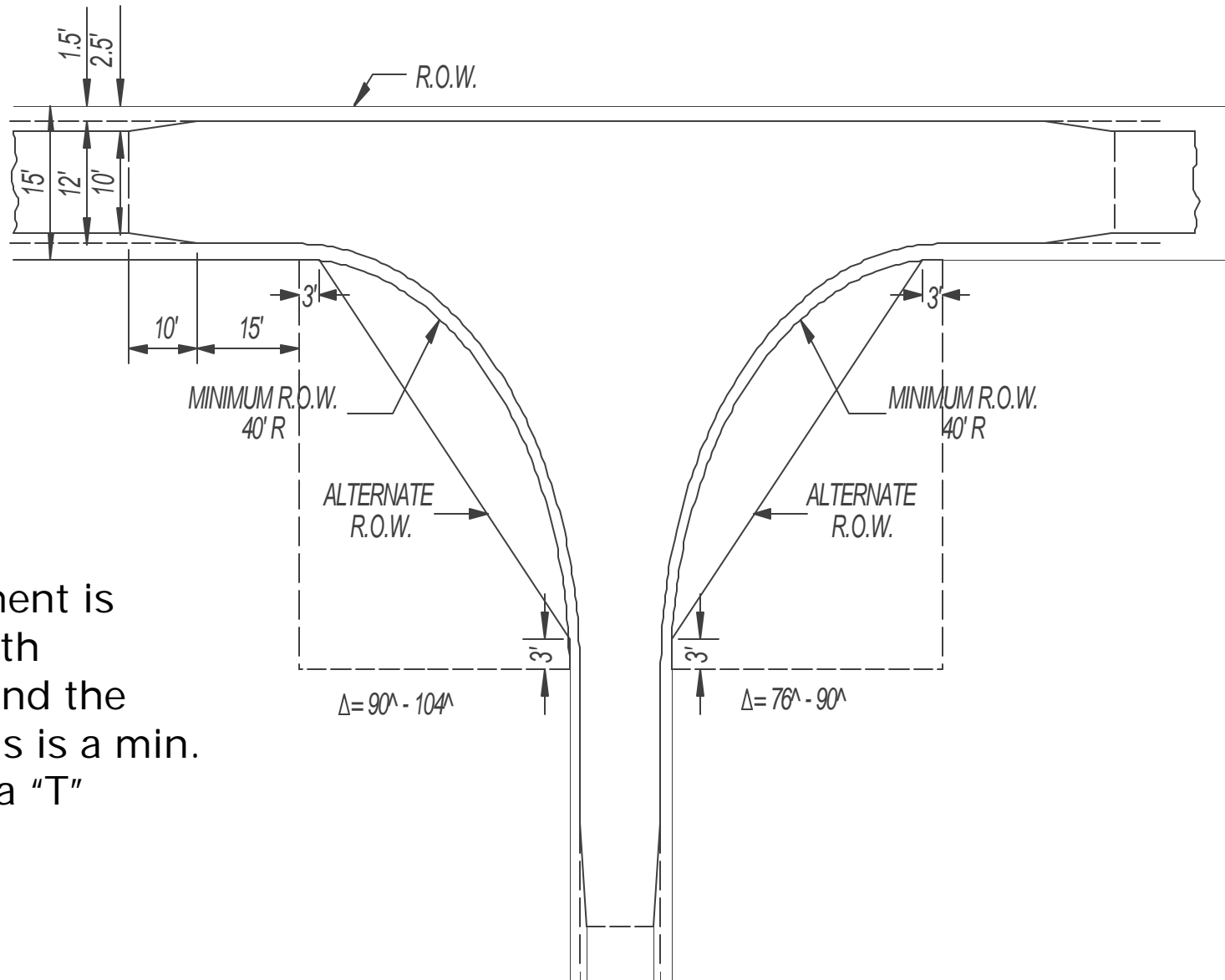
Operating Dimensions of Automated Garbage Truck on the Alley Design from 1964 to 1980



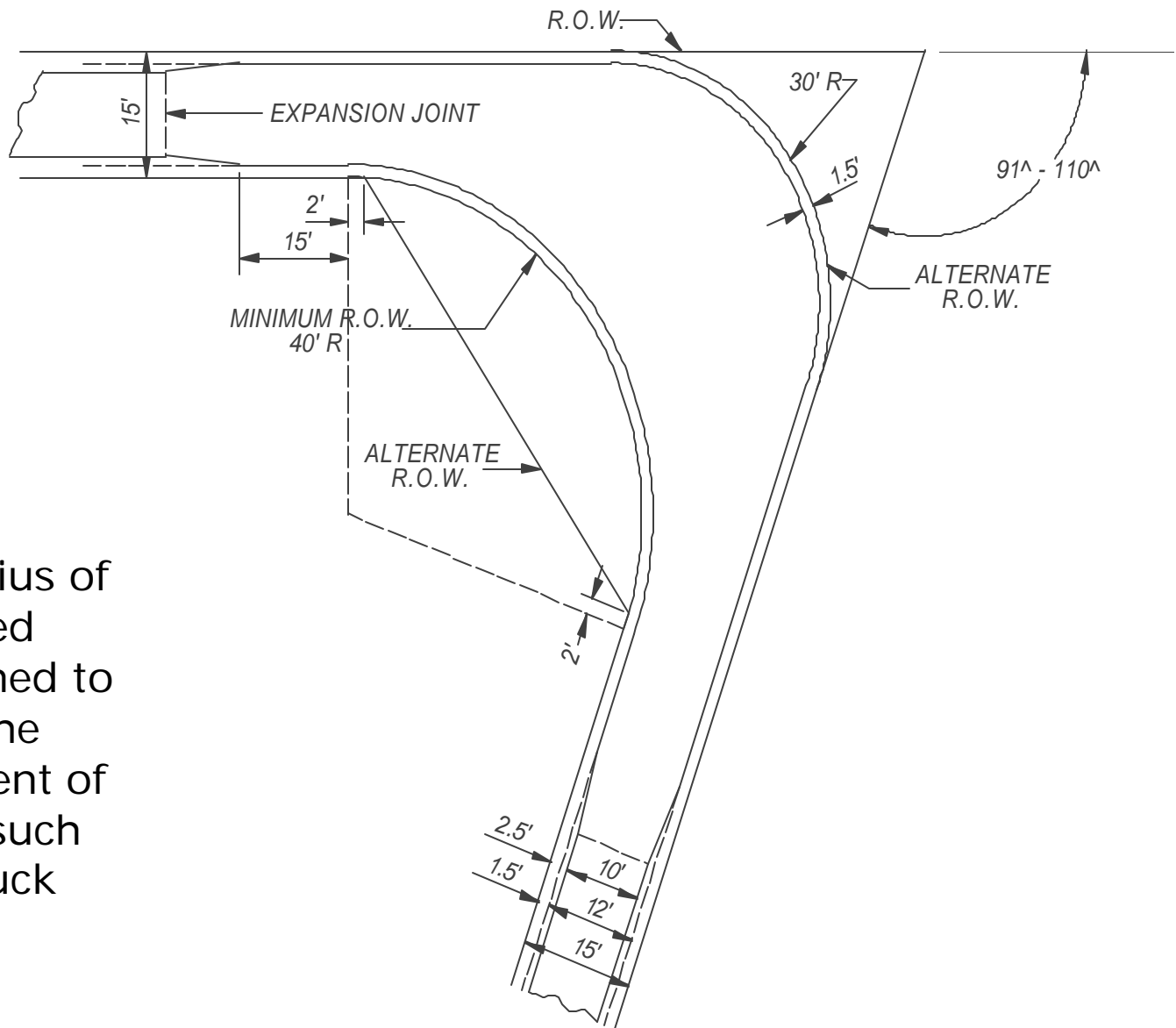
- The following pages are examples of some of the current horizontal geometric standards for alleys. These standard construction details were revised in 1990 to accommodate the SU Design Vehicle (Minimum turning radius of 42') like a garbage truck.
- This will accommodate the largest automated garbage truck in our fleet which has a turning radius of 33'-7"



The alley width is flared around a 90-degree turn to accommodate the turning radius of the SU Design Vehicle



Alley pavement is flared in both directions and the inside radius is a min. 40-foot for a "T" intersection



The outside radius of an acutely angled alley is lengthened to accommodate the turning movement of a large vehicle such as a garbage truck