

CHEYENNE AREA ON-STREET BICYCLE PLAN REPORT OF INVESTIGATION

Prepared for:
Cheyenne Area Transportation Planning Process



Prepared by:
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**CHEYENNE AREA
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REPORT OF INVESTIGATION**

EXECUTIVE SUMMARY

This report reviews previous work on bicycle facilities in the Cheyenne area and criteria and standards for bicycle facilities. An inventory of streets and roads in Cheyenne and the adjacent areas of Laramie County is included in an appendix. The inventory evaluates each of the segments considered for bike facilities and in some cases discusses improvements that would be required.

A set of drawings accompanying this report shows a proposed layout for bike lanes. The drawings do not constitute construction plans or contract documents, but should be useable for city or state striping crews to lay out and mark bike lanes. More detail would be required for contract documents, but the drawings constitute a base of information for preparation of contract documents.

This investigation relied heavily on previous work on the subject. The basis for selecting segments to be included in the inventory was (1) reports of previous work, (2) suggestions by city, county, and state officials and the public, and (3) streets with possibilities as connecting links with other on-street segments, existing off-street systems, and the proposed greenway.

Extensive summaries of previous work on bike facilities in Cheyenne and on development of criteria for bike facilities is included in the report. The purpose of including this material is to provide a convenient source of summary information on previous work as background information.

The original plan was to use a set of criteria, including street condition, existence of hazards, and visibility for selection of segments for bike lane treatment. It soon became apparent that street width was going to be the dominant consideration. Where there are other obstacles to bike use they are noted. In most cases they are relatively easily overcome. The exceptions are discussed in detail in the inventory.

The cost of developing the segments recommended for the on-street system is estimated to be approximately \$114,000. This includes removal of existing striping, restriping, pavement markings, signs, and a minimum of street repair and shoulder extension. In order to connect some parts of the system, some additional shoulder construction would be required, primarily on Yellowstone Road north of Vandehei Avenue. This additional work

would increase the estimated cost to about \$175,000. These costs are based on accomplishment of the work by city and county crews.

INTRODUCTION

This report presents the results of an investigation of streets and roads in Cheyenne and the adjacent areas of Laramie County for suitability for on-street bicycle facilities. The investigation was sponsored by the Cheyenne Area Transportation Planning Process.

Purpose of the Plan

The purpose of the On-Street Bicycle Plan is to describe a safe, convenient, and economical plan for use of public streets by bicycles. Specifically, the plan presents a proposed network of bike routes and bike lanes to serve the cycling public.

This plan does not constitute a construction contract document. It presents the following information for city, county, and state officials and the cycling public:

- A critical evaluation of the suitability for bicycle facilities on streets and roads in the Cheyenne area that have been proposed as bikeways
- Recommended criteria for bicycle facilities
- A proposed system of on-street bike lanes that meet the criteria
- Estimated programming costs
- Some suggestions for implementation of the on-street plan

The recommendations presented here are to some extent subjective. Trade-offs have to be made among considerations of convenience (for cyclists and motorists), compliance with nationally recognized standards, aesthetics, and cost. Public officials and cyclists may prefer alternatives or modifications to these recommendations -- both in overall concept and in detail. It is expected that this plan will be revised as input from various individuals and groups is obtained. In any case, the report provides a foundation for a plan by collecting street data, evaluating the "rideability" of the segments, assembling criteria, and thinking through the process of selection of the segments for an on-street system.

The following quote from the *Guide for the Development of Bicycle Facilities* published by the American Association of State Highway and Transportation Officials (2)¹, summarizes the task:

Bicycle facility planning is commonly thought of as the effort undertaken to develop a separated bikeway system composed of bicycle paths and lanes all interconnected and spaced closely enough to satisfy all the travel needs of bicyclists. In fact, such systems can be unnecessarily expensive and do not provide for the vast majority of bicycle travel. Existing highways, often with relatively inexpensive improvements, must serve as the base system to provide for the travel needs of bicyclists.

Objective

The objective of this plan is to answer the question: What is the best system of on-street bike lanes that would be consistent with the needs of cyclists and the motoring public, standards of safety, and costs?

DEFINITIONS.

In this report we shall be using the terms bike lanes, bike paths, bike routes and bikeways. They are not interchangeable. The following definitions are from the AASHTO Guide (2), and will be used throughout this report. Other publications on the subject generally adopt these or similar definitions.

BIKE LANE: A portion of a roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists.

BIKE PATH: A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right of way or within an independent right of way.

BIKE ROUTE: A segment of a system of bikeways designated by the jurisdiction having authority with appropriate directional and informational markers, with or without specific bicycle route numbers.

BIKEWAY: Any road, path, or way which in some manner is specifically designated as being open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.

¹Numbers in parentheses correspond to items listed in References.

REVIEW OF PREVIOUS WORK

There is a long -- perhaps surprisingly long -- history of planning for bicycle facilities in the Cheyenne area. The *Greenway Development Plan* prepared by David Ohde & Associates(8) notes that "Interest in greenways, paths, and bikeways extends back approximately sixty years in the City of Cheyenne." Ohde describes several subsequent studies, plans and reports, some of which have resulted in actual improvements.

Improvements now in place include the system of "bike routes", with signs all over town, and the bike paths that have been included over the past several years in the City's street improvement projects. The Greenway Development Program is the most ambitious effort to date, and is beginning to show visible results.

The Greenway, when complete, will provide an extensive off-street system for recreational and commuting use by cyclists and others. The "on-street" portion of the system is the subject of this Plan

The following discussion of earlier work on bike facilities in Cheyenne is adapted in part from material furnished by the Cheyenne Area Transportation Process.

1. Two Wheeling in Cheyenne, 1975 (4)

This brief report was the first of three studies for the Cheyenne-Laramie County Regional Planning Office. It contains statistics on bike use, cost estimates, and standards for bike facilities. The standards include dimensional requirements for bikes and a discussion of desirable characteristics of routes, lanes, and paths. The statistics, costs, and to some extent the dimensional standards are a little out of date; however, the discussion of desirable characteristics is still valid.

"Two Wheeling" suggests that bikeways must be "imaginable", that is, "...the system must be laid out in such a way as to give the cyclist a clear sense of where the system will take him." It must also provide a reasonably direct route from origin to destination. Finally, it must provide for increased safety, and that increase must be readily discernable. To meet these requirements, bikeways usually should be placed in established vehicle corridors.

The report also provides an overall plan for proposed routes, lanes, and paths, some of which were subsequently put in place.

2. Cheyenne Bikeway System, 1978 (6)

This study by CSSA and Wirth Associates is a design oriented report which has been implemented to some degree to make up the current system. The proposed system in this plan is similar, but not identical to the plan in "Two Wheeling".

It seems clear that at the time "Two Wheeling in Cheyenne" and "Cheyenne Bikeway System" were published, there was not much support for spending public funds for bike facilities. Few new facilities were provided. Extensive bike routes were defined and posted, but they often attempted to route bicycle traffic to the least used streets.

3. South Cheyenne Bikeway Plan, 1984 (3)

This study, by ARIX, was part of the transportation impact planning for the Peacekeeper program. The plan anticipated growth in the South Cheyenne area and was focused on that area. The plan presented a bikeway system for the City south of the U. P. Railroad, along with design criteria and cost estimates. This study addressed dangerous intersections and major arterials which should be avoided whereas the previous studies did not.

4. Cheyenne Bikeway Study, 1987 (10)

Conducted by Eagle Consultants in 1987, this study provided detailed recommendations on how to conduct a planning process for a bikeway system. General origin and destination data for bicycle use were provided to help locate logical routes which also avoided streets heavily traveled by cars. This study made the recommendations to locate paths on Dry Creek and Crow Creek. Design criteria, essentially taken *verbatim* from AASHTO (1981) were provided, along with many of the recommendations on system development that were eventually used in the Greenway Development Plan.

Until 1990, the City of Cheyenne did not place a high priority on construction of Bike Paths. At most, "Bike Route" signs were placed on the streets as recommended by the 1987 Cheyenne Bikeway Study. Then, in 1991, the voters of Laramie County approved the Laramie County Capital Facilities Sales Tax which provided for an additional 1% sales tax to fund a variety of local projects. Included on the ballot was \$2,800,000 for the construction of a major portion of the "off-street" Greenway Path System. Because of the timing of the tax issue and the projects selected to be placed on the ballot, the major planning efforts for the Greenway System occurred after the money was made available.

5. Greenway Development Plan, 1992 (8)

Conducted by David Ohde and Associates, this plan was adopted on July 13th, 1992. The purpose of the Greenway Development Plan is to provide a master plan for the proposed greenway system and to establish design and quality parameters. The Plan established preliminary costs and will serve as a guide for subsequent design and construction.

STANDARDS AND CRITERIA

Not all streets are suitable for bike lanes. They may be exactly where we would like to channel bike traffic, but if they do not meet minimum standards for width, pavement condition, grades, and freedom from safety hazards, they cannot be used.

The most critical of these criteria is width. Pavement condition can be improved by maintenance and repair. Grades are not so easily modified, but in the Cheyenne area are in general not a problem. Some safety hazards, storm drain inlets for example, can be eliminated by minor modifications (e.g., replacement with bike-safe grates). Other hazards, particularly those having to do with conflicts with high-volume, high-speed traffic, may be more difficult and more expensive to deal with.

It is essential for the purpose of this project to define the minimum standards for pavement and lane width for bike lanes. Width criteria for bike lanes are not clearly established, and appear still to be evolving. Several definitions of the minimum necessary width for bike lanes have been published. In the process of arriving at standards for use in the Cheyenne area, we considered those summarized in the following paragraphs.

Publications:

- AASHTO *Guide for Development of New Bicycle Facilities* (1)
- Guide for the Development of Bicycle Facilities* (2)

These documents will be referred to here as AASHTO '81 and AASHTO '91 respectively. AASHTO (both editions) recommends a five foot wide bike lane outside an eight to ten foot parking lane. Where parking is not permitted, a minimum of five feet from the face of curb and four feet outside the joint between the pavement and gutter is recommended. A minimum four foot wide lane (five feet is preferred) is recommended for rural (i.e. no curb and gutter) sections where shoulders give cyclists additional maneuvering width. AASHTO recommends additional widths where substantial truck traffic is present, where prevailing winds are a factor, on grades, or where motor vehicle speeds exceed 35 mph.

AASHTO also provides some suggestions for handling bike lanes at intersections.

In *Time-Saver Standards for Site Planning* (7), DeChiara and Koppelman present standards for a bike lane between the parking lane and the curb. We reject such an arrangement because of safety hazards, and will not further consider this arrangement. Where vehicle parking is prohibited, DeChiara and Koppelman recommend a five foot wide bike lane.

The U.S. Federal Highway Administration *Manual on Uniform Traffic Control Devices for Streets and Highways* (12) provides guidance on signs and pavement markings for bicycle facilities.

Wilkinson et al. have prepared extensive criteria for bike facilities in *Selecting Highway Design Treatments to Accommodate Bicycles* (13) (Draft). Using the AASHTO standards as a point of departure, the authors suggest that the treatment of a roadway to accommodate cyclists depends on several factors. They introduce the concept that different levels of experience and skill of cyclists indicate different types of design treatment. Therefore, one of the variables to be considered is whether the facility is to be used by people with advanced skills and experience ("Group A") or less experienced cyclists and children ("Group B/C").

Other variables are whether the section is urban or rural (i.e., whether there is curb and gutter), whether parking is permitted, the average daily traffic volume, the average motor vehicle operating speed, whether there is adequate sight distance, and whether the mix of traffic (trucks, buses, RV's, etc.) causes a problem. For example, for an urban section with parking, low traffic volume and speeds, adequate sight distance, and no problems with trucks, buses, and RV's, the authors recommend a wide curb lane of fourteen feet for both Group A and Group B/C riders. For higher average vehicle speeds, the fourteen foot curb lane is adequate for Group A, but a five foot bike lane is recommended for Group B/C. The authors present tables which present recommended treatment for any combination of rider group, urban/rural section, parking, AADT, average motor vehicle speed, and sight distance and traffic mix conditions.

Previous Work in Cheyenne:

Two Wheeling In Cheyenne (4) suggests that "An acceptable compromise...is three foot (3') bicycle lanes located between the parking and outside vehicular travel lanes. Since the average car needs only six (6) to six and a half feet (6 1/2') of the eight foot (8') parking lanes, the smaller bike lane would in essence be almost four and a half feet (4 1/2') wide". *Two Wheeling* is in effect recommending sharing of the same pavement by parking lanes

and bike lanes. By current standards, these criteria do not give much exclusive space to cyclists.

ARIX in *South Cheyenne Bikeway Plan* (3) recommends four foot wide bike lanes next to curbs where there is no parking, and five foot lanes outside curb parking lanes. In making recommendations for the bikeway, ARIX includes consideration of street geometry, parking, sight distance, truck traffic, and traffic volumes, but not in the detailed and explicit way of Wilkinson et al. Eagle Consultants in *Cheyenne Bikeway Study* (10) presents standards which essentially reproduce those of AASHTO '81.

Existing Standards:

The Cheyenne and Laramie County *Road, Street & Site Planning and Design Standards* (11) requires that the width of a bike lane be not less than five feet.

The *Oregon Bicycle Plan* (9) specifies six feet as the standard width of a bike lane with a minimum of four feet, or five feet from the face of a curb or guardrail. The Oregon plan further notes that lanes wider than six feet are not desirable because they may be mistaken by motorists for a motor vehicle lane or a parking lane. It should be noted that in setting standards, Oregon DOT prefers to establish "standard" rather than "minimum" dimensions. The reason is that facilities will be built to minimum dimensions, even when larger dimensions are more desirable and not necessarily more expensive. The "minimum" dimensions are established as being acceptable when it is not practical to provide the "standard" dimensions.

The City of Fort Collins *Design Criteria and Standards for Streets* (5) call for six foot wide bike lanes and, where parking is permitted, eight foot wide parking lanes on collector and arterial streets. The Criteria and Standards do not call for special bike facilities on residential or industrial/commercial streets. However, in a phone discussion, the Fort Collins Transportation Department informed us that approval of new plats is often contingent on provision of bike lanes where the Department determines that they are required.

Telephone inquiries were made to the Cities of Boulder and Longmont.

Boulder will not stripe a bike lane unless there is a minimum width of eleven feet for the traffic lane, eight feet for the parking lane and five feet for the bike lane. Where narrower lanes have been tried, there have been citizen objections. In some cases the City has been successful in removing parking to provide space for bike lanes.

City standards in Longmont require an eleven foot traffic lane and a seven foot parking lane before a bike lane is considered. The minimum bike lane width is four feet, although in some exceptional situations the width has been reduced by six inches. Longmont has some eight foot sidewalks offset from the street which are used by bicycles. They are not signed as bike paths or bike routes. The City indicates that these have been a source of accidents, particularly at intersections.

Recommended Criteria:

- Dimension Standards. The review of existing and proposed standards for bike lanes shows that there is no universally accepted standard. The AASHTO standards provide criteria that are consistent with most of the literature, and in particular with the present Cheyenne and Laramie County Road and Street Standards. We do not believe that there is reason to depart significantly from these standards. Therefore, for the purpose of this project, we will in most cases use the AASHTO standards to determine the suitability of existing streets for bike lanes. When and if necessary, we will also take into account the findings of Wilkinson et al. (13) to modify the standard because of special conditions. Where bike lanes are clearly desirable and the existing streets do not meet standards, and there are no reasonable alternatives, we will on the basis of the individual cases evaluate whether the standards can or should be slightly relaxed.

Non-dimensional Standards. The criteria presented in "Two Wheeling in Cheyenne" (4) for "imaginability", direct and accessible routes, and safety are still valid. Although our application of these standards does not always lead to selection of the same routes as in "Two Wheeling", the standards were a valuable guide in selecting segments for the on-street system. Other constraints, particularly the width of existing streets, prevented us from always achieving the "imaginability" and directness criteria we would have wished for the on-street system, and the segments proposed are something of a compromise. We have not compromised on safety criteria, but even with the best design, a public street can be a dangerous place for cyclists unless all users of the road obey traffic rules and apply caution, judgement and common sense.

STREET INVENTORY

About sixty street segments in Cheyenne and surrounding Laramie County were evaluated for inclusion in the on-street plan. These segments were selected from those recommended in earlier studies, those appearing to be likely candidates to meet the criteria for the current study, and segments suggested by City, County, and Wyoming Department of Transportation representatives,

and the public. A few additional street segments were included to attempt to complete a connection with other segments or to the proposed Cheyenne Greenway or to substitute for segments that were judged unlikely to meet the criteria. Each segment was evaluated against the dimensional and non-dimensional standards described above.

About 75 percent of the segments investigated were ridden on ten-speed or mountain bike to evaluate hazards, traffic conflict, and to get a subjective appreciation of the comfort level of cycling on the street. Segments not ridden on bikes were covered by motor vehicle.

A summary of the results of the inventory is presented in Appendix A. Virtually all the segments not recommended for inclusion in the on-street plan were excluded because they failed to meet width criteria. Some were more serious contenders than others. The inventory in Appendix A includes some annotation, particularly in the cases of segments which failed the dimensional criteria, but would have otherwise been good candidates for bike lanes.

Several of the recommended segments will need some structural work (in addition to striping, pavement marking, and signs) to bring them up to criteria. The most extensive examples are widening of shoulders on some rural sections and adjustment of appurtenances (manholes, water valves) on urban sections. Other improvements include replacement of storm sewer inlet grates and in some cases grinding the edges of pavements to eliminate a rough transition between street sections and gutter sections. The latter is a widespread problem where proposed bike lanes border curb and gutter sections, and would be enormously expensive to eliminate. Where four-foot lanes can be accommodated outside the pavement-gutter joint, this problem was not considered to disqualify a proposed segment for bike lanes, but it can be an annoyance and possibly a hazard for cyclists.

These and other features are noted in Appendix A where they are of significance.

PROPOSED BIKEWAY SYSTEM

The segments proposed for the on-street system are listed in Appendix B, along with a brief discussion of the recommended treatment and an estimate of the cost. Where we judged it to be appropriate, we comment on the relative priority the segment should be given in implementation of the on-street program. The recommended system is also shown on a map accompanying this report.

The recommended bike lanes include segments on streets and roads in the jurisdictions of Cheyenne, Laramie County, and the Wyoming Department of Transportation. We have not sought formal

approval from these entities for bike lane designations, but have informally described the proposed plan to all of them. When the proposed plan has been discussed in the community and possibly modified, it would be appropriate to secure approval of the city and county governing bodies and of the WTD District 1 Engineer.

As noted previously, the proposed on-street system reflects both objective application of criteria and subjective application of judgment. Two aspects of our judgement which have a considerable effect on the recommendations should be made explicit:

1. The Advisability of Bike Routes.

The recommended on-street system has several gaps, where it is not possible to provide bike lanes that meet the dimensional or other criteria. There is a temptation to post some streets that fill these gaps as bike routes to provide continuity in the system. In most cases we have resisted this urge for a couple of reasons.

First, designation of a street as a "bike route" provides no physical protection for cyclists. Where a street becomes too narrow to continue to support bike lanes, a switch to bike route signs could lead cyclists and motorists to erroneously believe that something is still being done for bikes.

Second, bicycles will use any street where they are permitted, so bike route signs often convey no useful information. In some cases, they could be interpreted as promising some consideration for cyclists when in fact delivering none.

The recommendations recognize some exceptions to the general avoidance of bike routes. These exceptions occur when "route" signs can assist cyclists in finding the way to resumption of lanes or paths where such a choice is not clear. An example where we apply this exception is on Carey Avenue north of Second Avenue, where route signs (in this case presently in place) lead to Lion's Park and the off-street system of paths.

Another exception is where the best way for cyclists is not on a major motor traffic street, but this is not obvious to the cyclist. In Cheyenne, there are no good east-west connections from downtown. Cyclists may use Lincolnway or the 19th - 20th Streets couplet if they don't mind the high volume of motor traffic. For many cyclists this is a good choice, and they will use these streets with or without designation as a route. An alternative, not obvious, is to use East 22nd Street. This is a relatively low-traffic street that is perfectly acceptable to many riders. Route designation (also,

as it happens, presently in place) may encourage some cyclists to try this route and possibly prefer it. (It should be noted that 22nd Street is not perfect. Some poor pavement conditions, stop signs, and parking on both sides may not be to everyone's taste.)

In summary, where streets are adequate for shared lanes, we have in general not recommended that they be designated as bike routes. There is an existing network of routes in Cheyenne. We do not recommend removing these signs except in cases where lanes are to be provided, or where the routes are clearly unsafe. But new routes are only a minor factor in the system recommend in this report.

2. Selection of Recreational Segments

Where they meet the criteria, segments on high traffic volume streets are recommended for bike lane treatment, and would be expected to carry appreciable bicycle commuter traffic. Some other segments will most likely have very little commuter traffic but will provide a good recreational tour. Even though the bike traffic volume on these segments is expected to be low, even by Cheyenne area bike use standards, development of bike lanes is recommended. This may reflect a bias that assumes that the existence of bike lanes will encourage recreational bike use, and that it is public policy in these jurisdictions to encourage all types of bike use. An example is the recommendation for bike lanes on Campstool Road from the Frontier Refinery to Interstate 80, on which commuter traffic (especially east of College Drive) will be negligible.

CONCLUSIONS AND RECOMMENDATIONS

The Cheyenne Area can benefit from a system of bike lanes, as described in this report. Some of the segments may be implemented immediately by striping, pavement marking, and erection of signs. Others will need more extensive and expensive construction work.

Several segments (they are noted in Appendix A) are not presently suitable for bike lanes, but are planned for reconstruction. All streets and roads planned for reconstruction or major repair should be designed to accommodate bike lanes, even if they do not appear to fit into a system.

The ARIX report (3) referenced above makes the following important observation, which is still valid and which should be observed during the development of the system:

Development of bikeways should not be considered unless a full commitment can be made to design and construct the

facilities to meet or exceed minimum design standards. ... An improperly designed facility can be a problem to even the most skilled bicyclist. If reasonable standards cannot be met, bicyclists may be better served without the facility. As experience has shown, a poorly conceived and poorly designed facility will frequently not be used by bicyclists. A facility that is not used may be considered a waste of public funds.

We would add that provision of bike lanes involves a substantial commitment to maintenance. Bicycles are more sensitive to streets in poor repair, intrusion of manholes and other appurtenances above or below the pavement, and trash and debris. Also, maintenance of the additional striping, pavement marking, and signs will be substantial. If the jurisdictions cannot commit the additional resources to adequately maintain and operate bikeways, it would be preferable to not embark on an on-street program. The benefits obtained from encouragement of increased bicycle use have a price. We recommend that governing bodies be explicitly advised of the increased claim on scarce maintenance funds that will be presented by the on-street system.

Funding for the development and maintenance of the on-street system was not part of this study. However, during the course of the investigation, it was suggested to us by several people, including a bike shop operator, that the cycling community would support enforcement of some kind of licensing fee for bikes, provided that the funds be dedicated to maintenance of bike facilities (on- and off-street). This is by no means a scientific poll, but is noted as a recommendation for raising part of the funds necessary to encourage cycling in the community. We heard no objections to an equitable license fee as long as it is uniformly enforced and is reasonable in amount. Although somewhat outside our charter for this investigation, the authors of this report (cyclists all) would like to associate themselves with the suggestion and include it as a recommendation.

REFERENCES

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APPENDIX A
STREET INVENTORY

Segment 1. Dey Avenue - 19th Street to 22nd Street;
 22nd Street - Dey Avenue to Carbon Avenue;
 Carbon Avenue - 22nd Street to 19th Street.

This segment would provide an east-west connection through the Original City. However, a minimum street width of 48 feet is required for bike lanes. There are a few blocks that meet the criteria, but for most of its length 22nd Street is approximately 44 feet wide face-of-curb to face-of-curb. East of Logan Avenue the street narrows to between 36 and 39 feet. The segment is therefore not suitable for lanes.

East 22nd Street is presently designated and marked as a bike route. West of Logan, the street is wide enough for shared lanes, the common criterion for bike route designation. East of Logan, however, the street narrows and does not meet minimum criteria for shared lanes (14' wide lanes). Although most cyclists would have no trouble operating on this lightly travelled street, is questionable policy for the jurisdiction to encourage use of a street that clearly does not meet recognized criteria. The alternative is to terminate the route at Logan Avenue. This would violate a basic principle of good bike facility design: "Never abandon the cyclist".

Our recommendation between these more or less unsatisfactory choices is the terminate the signed route at Logan Avenue. Cyclists (eastbound) will have the choice of continuing on 22nd Street or using Logan Avenue (see Segment 8).

Segment 2. Pershing Blvd. - Converse Avenue to College Drive

In order to provide for bike lanes on Pershing, with two lanes of traffic in each direction and median or turning lanes, a total width of 68 feet would be required. This segment of Pershing varies between 59.5 and 67.5. It is not suitable for lanes.

The wide sidewalks on the north side of Pershing east of Converse, adjacent to the VA grounds, have been suggested as a suitable bike facility. Use of sidewalks for bikes is not recommended. Although some of the objections do not apply here (large numbers of driveways crossing the sidewalk, for example) the designation of sidewalks for bike use raises problems of safety, annoyance of all parties, and confusion. It is considered better for this segment to not be designated than to violate this principle. (Use of off-street facilities by bikes and pedestrians, while also a problem, is a somewhat different matter and should not necessarily be uniformly prohibited.)

Segment 3. Morrie Avenue - Airport Parkway to 19th Street.

North of Pershing, Morrie is about 37 feet wide. The east side is an urban section (curb and gutter); the west side has gravel shoulder. A width of 40 feet would be required for lanes. South of Pershing, Morrie is an urban street with parking on both sides. Average width is between 36 and 44 feet. For bike lanes, 48 feet is required.

This segment is considered not suitable for bike lanes. The portion north of Pershing could be widened to provide adequate width if parking on the west side is prohibited. This would provide a connection with Airport Parkway (Segment 60). It is recommended that if plans for future expansion of the Cheyenne Airport require reconstruction of Morrie, that the section be of adequate width for bike lanes and that they be provided. For the present, this segment is not suitable.

Segment 4N. Carey Avenue - 19th Street to Kennedy Drive

Carey Avenue is suitable for bike lanes throughout its length from downtown to 2nd Avenue. North of 2nd Avenue Carey becomes 2-way, which would require lanes on both sides.

Bike lanes are recommended from 19th Street to 2nd Avenue. An alternative would be to begin the lanes at 22nd Street, a bike route, and connect to the north-south couplet at Central and Warren Avenues. This would have the advantage of providing this segment a logical starting place and avoid lanes in the most congested part of downtown. It would, however, also deny the benefits of lanes for these three blocks. The layout of bike lanes accompanying this report show the lanes beginning at 19th Street. There is no fundamental objection, however, if the City wishes to begin at 22nd Street.

North of 2nd Avenue, it is recommended that Carey Avenue be designated as a Route, as is presently the case. The connection provided to Lions Park and the relatively heavy bike traffic make this a reasonable exception to our general aversion to bike routes.

Segment 4S. Pioneer Avenue - Pershing Boulevard to 20th Street

This is the other half of the Carey Avenue - Pioneer Avenue couplet. As a one-way street, Pioneer Avenue requires only one lane. The width is adequate throughout this segment, although in places only barely so. It is recommended that the lanes be placed on the left side as shown on the layout accompanying this report. This is not the usually accepted practice, but getting bike traffic through the intersection at Randall Avenue requires it there. It is considered better to keep the lane on the left throughout rather than move it back and forth across the street.

It was our original intention to continue the lane south to 19th Street. However, Pioneer Avenue becomes a three lane street between 20th and 19th Streets, with two left turn lanes at 19th Street. It would be difficult to place a lane in this block that would not be confusing, unsafe, and difficult to negotiate for cyclists and motorists. Rather than give a false sense of security to cyclists, it was determined to terminate the lane at 20th Street. Experienced cyclists (the only ones that should be in this area) will have no trouble adjusting to the traffic situation south of 20th Street without lanes. If the lane were to be continued to 19th Street, parking would have to be removed on the east side, adjacent to the old county jail. This would probably be acceptable, but would not solve the problem of crossing turn lanes and would not make the continued lane a good alternative.

The option of terminating the lane at 22nd Street applies to Pioneer as it does to Carey. See the discussion under Segment 4N above. The layout shows the lane to 20th Street, but ending it at 22nd would be a reasonable alternative.

Segment 5. Randall Avenue - Carey to McComb Ave.

Randall Avenue varies in width. In order to provide bike lanes, motor vehicle lanes have to be reduced to 11 feet. The proposed layout is contingent on that reduction. If 11 foot lanes are not acceptable on Randall, this segment is not suitable for lanes. The proposed layout begins the segment at 27th Street and Carey Avenue to avoid the narrow street east of Pioneer on Randall. Southeast bound bike traffic is routed off Randall to Thomes and 24th Street, joining Pioneer at 24th Street, to avoid the intersection with Pioneer. These detours violate for a short distance a rule against providing only one lane on two way streets. The purpose of the rule is to avoid encouraging cyclists to use lanes intended for one way traffic as a two way lane. In these cases, however, the importance of avoiding dangerous intersections justifies the exception to the rule.

Segment 6. Kennedy Drive - Central Avenue to Stinner Rd.
Hynds Blvd. - Stinner Rd. to 8th Avenue
8th Avenue - Hynds Blvd. to Cribbon Ave.
Cribbon Ave. - 8th Ave. to 27th Street
27th Street - Cribbon Ave. to Dillon Ave.
Dillon Ave. - 27th St. to 24th St.

This segment meanders along the west edge of the city and provides connections to several other segments. Throughout most of its length, however, it is not wide enough for lanes. Most of the segment is presently designated as a route, but, for reasons discussed elsewhere in this report, the designation of a route without improvements for bike traffic is of limited and dubious value. All things considered, we recommend leaving this segment as

a bike route because of its convenient connection with F. E. Warren Air Force Base and downtown Cheyenne.

Segment 7. W. 24th Street - Dillon Ave. to Missile Drive
 Westland Rd. - Missile Dr. to Old Happy Jack Rd.
 Westland Rd. - Old Happy Jack Rd. to W. Lincolnway

The first two parts of this segment are new street sections with wide paved shoulders, and are suitable for lane treatment. The only work required is pavement marking and erection of signs. These sub-segments provide a connection from the Westland Road commercial area to downtown. However, except for the bike route at Segment 6, there are no connections with bike facilities at either end. If Missile Drive is ever rebuilt to provide for lanes, this segment would be more appropriate. Also, reconstruction of the Westland Road part of this segment south of Old Happy Jack Road (not planned) and West Lincolnway (planned) would increase the value of this segment. As it is, Westland Road south of Old Happy Jack Road does not meet dimension criteria or condition standards for lanes.

The layout plan shows lane treatment for the first two parts of this segment, but it is not recommended that it be given a high priority. Even without marked lanes, the wide, paved shoulders provide a good bike tour when kept free of sand and dirt.

Segment 8. Logan Avenue - Pershing to Nationway

This segment is not suitable for lanes. It does not meet width criteria, the build-up of asphalt pavement at the gutter lines is a hazard, and the heavy traffic and frequent turns provide a definitely uncomfortable environment for bikes. The portion between Lincolnway and Nationway is marginally acceptable as far as dimensions are concerned, but does not provide any logical links to the system.

Segment 9. Norris Viaduct - Nationway to 7th Street

This segment is sufficiently wide for shared lanes at the ramp sections, but not at the bridge section. It was observed that virtually all cyclists use the sidewalk. Riding on the street sections was definitely uncomfortable because of the volume, speed, and character (many trucks) of motor traffic and the relative narrowness of the roadway. The sidewalk can also be unsafe. Guardrail bolts protrude into the sidewalk area, some of them as much as two inches. The bridge railing is only about 32 inches high, adding further to the discomfort of cyclists. Experienced cyclists can safely use this segment, but it does not meet the standards for lane treatment.

Segment 10. 7th Street - Duff Ave to Snyder Ave
 Snyder Ave. - 7th St. to 5th St.
 5th St. - Snyder Ave. to Cribbon Ave.
 Cribbon Ave. - 5th St to W. Allison Rd.

This segment traverses the south area of Cheyenne from east to west. The segment is not suitable for lanes (too narrow), except for a few blocks at the south end (Between Gopp Ct. and West Allison Road). Traffic is moderate, and even with parked vehicles on both sides for most of the way, it is quite comfortable to ride. The segment crosses two overpasses (7th St. over I-180 and Cribbon Ave. over I-80). A block or so of 7th Street is unpaved between Carey Avenue and Crow Creek. Bike route designations are not generally recommended, but a case could be made for giving this crosstown route such treatment.

If the segment is designated as a route, some improvements should be considered. Cyclists must dismount to get on the footbridge over Crow Creek. Furthermore, the ramps from the west end of the bridge (to Deming Drive) and from the west side of the I-180 overpass (to Central Avenue) do not line up well with curb ramps. These should be corrected.

Segment 11. West Allison Road - Cribbon Ave. to Walterscheid

This segment consists of a wide urban section west of Snyder and a rural section with wide paved shoulders east of Snyder. There are presently some pavement markings and signs designating bike lanes. A long downhill grade from west to east at the east end of the segment will permit bikes to attain very high speeds. It may be necessary to keep shoulders on this stretch clear of gravel and debris to reduce the likelihood of a high-speed spill for a cyclist. This segment is included in the recommend on-street system.

Segment 12. Walterscheid Road - 1st Street to W. College Drive

The road has a curb, gutter and sidewalk on the east side and a paved shoulder on the west side. The total width is adequate for bike lanes on both sides, but only if parking is not permitted on the east side. This should not be much of a problem, as there is virtually no demand for parking on this segment. It would not be absolutely necessary to post the road to prohibit parking -- the only likely parking would be in emergencies and in any case parked vehicles would not be much of a problem for cyclists. The layout plan calls for posting for no parking, but this could probably be omitted. Bike lanes would probably have to be interrupted where the street passes under I-80 because of constricted pavement width. The segment will join College Drive at the south end, providing a connection when College Drive is rebuilt to include bike lanes. This segment is included in the recommend on-street system.

Segment 13. College Drive - Southwest Drive to Avenue "C"

This segment is not presently suitable because of narrow shoulders. Furthermore, many side streets are unpaved, causing gravel to be thrown across potential bike lanes. This segment is programmed to be reconstructed by the Wyoming Department of Transportation, and will be built with wide shoulders for bike lanes. It is recommended that cross streets be paved well back of the College Drive right-of-way to avoid gravel being moved from unpaved roads to bike lanes on College Drive.

Segment 14. South Greeley Highway - College Drive to First Street

The width, traffic volume and condition of this segment makes it unsuitable for bike lanes. The Wyoming Department of Transportation will rebuild the road from Fox Farm Road to College in the near future, with adequate width for lanes. The reconstruction will reduce the number of accesses to adjacent property, thereby removing a significant hazard for cyclists as well as motorists. When the reconstruction is complete, this segment should be included in the on-street system, along with Fox Farm Road from S. Greeley Highway to Walterscheid, which is included in the project.

Segment 15. College Drive - Avenue "C" to I-80

The shoulders at the west end of this segment are narrow, and would have to be rebuilt from Avenue "C" to the main entrance of Laramie County Community College. The remainder of the segment has wide shoulders and is recommended for the on-street system.

Segment 16. Parsley Blvd. - College Drive to Ames Avenue

Between College Drive and West Jefferson Road this rural road is too narrow for bike lanes or shared lanes. North of West Jefferson, the segment is included in the recommended system. The lanes will be interrupted at the I-80 overpass because of width constriction. Some shoulders north and south of the bridge will need to be widened and are shown on the layout plan. Parking should be prohibited on the urban section north and east of Pacific Drive.

Segment 17. West Jefferson Rd. - Cribbon Ave. to Parsley Blvd.

This segment is too narrow and not suitable for inclusion in the system, although it would be a desirable connection.

Segment 18. Southwest Drive - College Drive to West Lincolnway

This segment is too narrow throughout its length for bike lanes.

Segment 19E. West Lincolnway - Missile Drive to I-80

West Lincolnway is not wide enough to accommodate bike lanes with four lanes of motor vehicle traffic, median and turn lanes. Eventual reconstruction by the Wyoming Department of Transportation should provide for adequate width for bike lanes.

Segment 19W. Otto Road - I-80 to Round Top Road

Segment 20. Round Top Road - Otto Road to Horse Creek Road

These rural segments are of inadequate width for bike lanes. There are no plans for reconstruction or widening, or for paving Round Top Road north of the U. S. Department of Agriculture station. These segments, and especially the wooded grounds of the USDA station would make attractive bikeway locations. Consideration could be given to eventually developing off-street path facilities to this area. For the present, however, the roads offer no possibility for bike lane treatment.

Segment 21. Happy Jack Road - Missile Drive to Round Top Road

Shoulders on this rural segment west of Crow Creek are adequate for bike lanes and are included in the recommend plan. Missile Drive from Happy Jack Road to West Lincolnway was also considered, but frequent interruptions at intersections, railroad bridges, and the I-25 overpass made it a poor candidate.

Segment 22. College Drive - I-80 to Fourmile Road

Segment 23. Fourmile Road - College Drive to Yellowstone Rd.

South of Dell Range, this segment has wide paved shoulders and is included in the recommended plan. Bike lanes will be interrupted at some intersections where turn lanes encroach on the shoulders. Between Dell Range and Carla Drive some restriping and prohibition of parking will be required to accommodate bike lanes. If this is not possible, the lanes will be interrupted from Dell Range to about Carla Drive. If that is necessary, it is recommended that signs notify cyclists that the lanes resume ahead.

North of Carla Drive, paved shoulders are generally wide enough for bike lanes, and the layout includes bike lane treatment there. Along some stretches of both segments, the shoulders may have to be extended by a foot or so to give adequate width, but such work will not be extensive. At some intersections, the shoulder pavement narrows to accommodate turn lanes. Also, gravel from unpaved cross streets will be a continuous maintenance problem.

Segment 24. Nationway/12th Street - E. Lincolnway to N. College Drive

This segment would be an important connection to the east part of Cheyenne. However, it does not meet the width criteria. The divided highway (Dunn Ave. to Ridge Road) could be restriped to provide a shoulder lane, but the lane would have to be five or six feet wide, leaving no shoulder on the other side of the road. As a practical matter, the width of shoulders would have to be extended for about half the length of the segment. East of Ridge Road, the urban section is about five feet too narrow to accommodate bike lanes. Removal of parking on the south side would be necessary. The parking serves residences facing 12th Street, and its removal would be unlikely to be well accepted.

This segment is not included in the recommended system.

Segment 25. East 12th Street east of College Drive

West of Adams Street, parking would have to be removed to accommodate lanes. East of Adams, there is sufficient width for lanes. This segment would end at College Drive and would not be part of an east-west connection to downtown. The connection to the north-south segment on College Drive (Segment 22) would be of some value, but not enough to justify the cost and the removal of parking. This segment is not included in the recommended plan, but could be added.

Segment 26. Taft Avenue - Pershing to Atlantic

The only portion of this segment that is suitable for lanes is from Copperville to 12th Street. North of Copperville the road is unpaved, and is too narrow south of 12th Street. The segment is not included in the present plan. However, the portion north of 12th Street could be a useful addition if all the following conditions were met:

- Segment 25 is developed for lanes
- The street is paved north to Pershing to a width adequate for lanes
- Pershing Avenue is rebuilt to a width adequate for lanes (See discussion for Segment 29 below.)

Segment 27. Whitney Road - Pershing Blvd. to Dell Range Blvd.

This segment is paved north of US-30, unpaved to the south. The paved section is too narrow for lanes. This segment is not suitable for bike lanes and is not included in the recommended plan.

Segment 28. Campstool Road - Duff Avenue to I-80

East of the Frontier Refinery, Campstool Road has five-foot paved shoulders and is suitable for lanes. The pavement is in generally good condition, but the striping needs to be replaced. The segment from the refinery to I-80 is recommended as part of the on-street plan. It will probably receive only recreational use.

West of the refinery the shoulders disappear, and that part of the segment is not recommended for lanes unless the shoulders are extended. Signs should be provided to inform cyclists where the bike lanes begin and end.

Segment 28S. Lexington Road - Campstool Rd to N. Industrial Rd.
N. Industrial Rd. - Lexington Rd. to College Drive

This segment connects Campstool Road with College Drive. Lexington road has adequate width for bike lanes, but not for parking lanes also. There is probably no need to post for no parking, as it is not likely that there will be any significant parking demand. Livingston Road would have been a better connection (and in fact will probably be used by most cyclists) but has inadequate width for bike lanes. North Industrial Road has 4' paved shoulders and is in satisfactory condition for lanes.

Segment 29. Pershing Blvd. - College Drive to I-80

This segment is inadequate for bike lanes. Pershing from College Drive to Christensen Road is scheduled for reconstruction in 1993, and should be built to accommodate lanes for that portion. East of Christensen Road Pershing will remain a narrow rural section. Although not suited for special bike treatment, the light traffic make it a good recreational ride.

Segment 30. Dell Range Blvd. - College Drive to US-30

The recently rebuilt portion of Dell Range from College Drive to El Camino is suitable for bike lanes if parking is removed from both sides. The existing parking lanes would be redesignated as bike lanes. Although there is little or no demand for non-emergency parking, it is recommended that the segment be posted for no parking. The existing stripes are thermoplastic material which could be slippery when wet. We had no problem with traction with bikes on the dry surface. We were able to skid a bike on the wet surface, but it took some effort, and there was no problem with control during ordinary bike operation. In view of the cost of removing the stripes and replacing them with paint or a material with more traction, we recommend that they be left in place. When they eventually need to be replaced, they should be replaced by a bicycle-friendly material or paint.

Dell Range east of El Camino is not suitable for bike lanes.

Segment 31. Evers Blvd. - Bishop Blvd. to Deer Avenue.

This segment is adequate for bike lanes and is included in the recommended plan. The city traffic department is considering striping Evers for three lanes, including a median/turn lane. There will still be adequate width, but the center lane may have to be narrowed to 11 feet in places.

Segment 32. Bishop Blvd. - Western Hills Blvd. to Vandehei

The segment is not suitable for bike lanes. An off-street path (preferably on the west side of Bishop if there is adequate right-of-way) would be the preferred eventual solution, but does not appear likely in the near term. For a recommended short term measure to connect Western Hills Blvd to Evers, see Segment 32W below.

Segment 32W. Deer Avenue - Western Hills Blvd. to Evers Blvd.

Deer Avenue can accommodate bike lanes and is recommended as a short term substitute for a system on Bishop Blvd. The connection with Western Hills Blvd. is somewhat awkward: southbound cyclists would be expected to cross Western Hills Blvd. and use the lane on the south side of Western Hills for one block, then cross again to get to the I-25 overpass. It is likely that many cyclists will just travel against traffic for one block. This is not a major hazard, because the traffic is light, and for those cyclists who obey the rules of the road it is not a hazard at all.

Segment 33W. Western Hills Blvd. - Buffalo Avenue to Yellowstone Road.

West of Antelope Ave. the south shoulder will have to be extended a few feet to provide adequate width for lanes on both sides. Development of this portion could be deferred, as it will have limited use and motor traffic is no problem.

Signs are recommended directing cyclists to dismount when crossing the I-25 overpass, which is a pedestrian facility. Compliance will probably be a function of the degree of enforcement.

Between Hynds Boulevard and Yellowstone, the section of Western Hills Boulevard is not adequate for bikes in its present configuration of two lanes of motor traffic in each direction. It is recommended that this part of Western Hills be restriped for one motor lane in each direction with center/turning lanes. The lanes shown on the layout plan are contingent on this change. If it is determined that this change should not be made, this part of the segment is not suitable for bike lanes.

The wide sidewalks on the south side of Western Hills Blvd. tempts bikes to use them. Lanes in the street would help encourage cyclists to get off the sidewalk and into the bike lanes, a safer arrangement for everyone.

Segment 33E. Storey Blvd. - Yellowstone Rd. to Powderhouse Rd.

This road is in poor condition, has heavy traffic, and is not wide enough for lanes. The proposed reconstruction of Storey Blvd. will provide for bike lanes.

Segment 34. Vandehei Ave. - Evers Blvd. to Yellowstone Rd.

This segment is suitable for lanes and is recommended for the on-street system in the layout plan. The overpass on I-25 is too narrow for lanes to carry through, but the Wyoming Department of Transportation plans to rebuild the overpass in 1993. The rebuilt overpass will accommodate bike lanes.

The segment is expected to have high use by commuting and recreation cyclists and greatly increased motor vehicle use. Marking and signing for bike lanes should give careful attention to safety details.

Segment 35. Bishop Blvd. - Vandehei Ave. to Horse Creek Rd.
(I-25 frontage road)

This narrow section is not suitable for bike facilities.

Segment 36. Yellowstone Rd. - Riding Club to Iron Mtn. Rd.

North of Joyce Rd the section is wide enough for shoulder bike lanes. Most of this portion would have to be re-striped to provide minimum width of 4 feet for bike lanes (5' preferable where possible).

Between Riding Club Rd. and Joyce Rd. the road is inadequate for bike lanes. Paved shoulders would have to be added. The frontage roads on this section are also inadequate, unless they were to be designated one-way. Even if the frontage roads were to be made one-way, it is questionable as to whether cyclists would use them.

Segment 37. Yellowstone Rd. - Storey Blvd. to Riding Club Rd.

North of Vandehei the shoulders are too narrow for bike lanes, and would have to be extended from two to four feet (each side) to be adequate. Portions of existing shoulders, in addition to being too narrow, have been built up to form edges and dropoffs that would be a hazard for bikes.

South of Vandehei the shoulders widen to form excellent bike lanes. It would be desirable (from the cyclists point of view) to remove parking on Yellowstone. The street is not heavily used for parking, but an occasional parked vehicle could (and does) cause problems for bikes in heavy traffic. The choice of whether or not to remove parking for the benefit of cyclists is a tradeoff between conflicting interests. We recommend it if this segment is selected for bike lanes. Parked vehicles and bikes would create too much of a conflict in this environment. If it is unacceptable to remove parking, this segment is not recommended for bike lanes.

Segment 38. Yellowstone Rd. - Central Avenue to Storey Blvd.

Between Dell Range and Storey Blvd, existing shoulders are adequate for bike lanes. Prohibition of parking on Yellowstone for this segment should be less of a problem than for north of Storey, with the possible exception of the northern half-block or so. South of Dell Range, bike lane treatment is not recommended, because the shoulders are mostly taken up by turn lanes. The existing off-street path on the west side of Yellowstone between Central Ave. and Dell Range is inadequate and used also by pedestrians, but its use by cyclists is still preferable to attempting to put the cyclists in the street. When the Central-Yellowstone intersection is rebuilt it should be designed to accommodate bikes.

Segment 39. Central Ave. Yellowstone Road to Bishop Blvd.

Existing shoulder lanes on Central are suitable for bikes south of Walker, and the layout plan includes this portion. West of Walker, turn lanes and the interchange with I-25 restrict the width available for lanes.

The shoulder lanes on Central Avenue south of Yellowstone are also mostly wide enough for use as bike lanes. However, cyclists would be abandoned at 8th Avenue. Bike traffic should be routed to the off-street paths in Lions Park to connect with Carey Avenue. This project does not consider the off-street system; however, we recommend that consideration be given to separating bike and pedestrian traffic in the Park. The growing use of park trails by both types of users will soon make combined use annoying and dangerous.

Segment 40. Ridge Road - Dell Range Blvd. to Riding Club Rd.
Riding Club Rd. - Ridge Rd. to Yellowstone

This segment is not suitable for lanes. It is programmed to be rebuilt by the Wyoming Transportation Department during the next few years. The new section will include shoulder lanes adequate for bikes.

Segment 41. Powderhouse Road north of Riding Club Rd.

This section is too narrow, and not suitable for bike lanes.

Segment 42. Powderhouse Road - Dell Range to Riding Club Rd.

Between Dell Range and Prairie Ave, the width is adequate for lanes, but turn lanes restrict the width available for bike lanes near Prairie. North of Prairie, shoulders are adequate for bike lanes, but some shoulder repair is necessary, particularly north of Storey. Some restriping will be needed. It is recommended that the bike lanes begin at Prairie, with signs at Dell Range directing cyclists.

Segment 43. Iron Mountain Road - I-25 to Powderhouse

This segment, unpaved except for a short section at the west end, is not suitable for bike lanes.

Segment 44. Horse Creek Road - I-25 to Round Top Road

This segment is not suitable for bike lanes. Reconstruction of the segment is in the Wyoming Transportation Department's long range plans. Shoulders adequate for bike lanes will be provided in the reconstruction, but the work is several years in the future.

Segments 45 through 47 - Not used.

Segment 48 Reese Road - US-30 to Pershing Blvd.

Segment 49 I-80 Frontage - Campstool Rd. to Pershing Blvd.

These segments provide a pleasant ride through rural areas, but have inadequate width for bike lanes.

Segment 50 Morrie Avenue - 5th Street to Fox Farm Road

The width of this segment is barely adequate. Inclusion would require major repair or reconstruction to eliminate the sharp drop-off at the edge of the shoulders on the west side. This segment is not included in the recommended plan. However, it would be a useful connection to the Crow Creek segment of the proposed Greenway. When that section of Greenway is constructed, consideration should be given to include the necessary work on Morrie to make this segment adequate for lanes.

Segment 51. Avenue "C" - Fox Farm Road to College Drive

This segment is not sufficiently wide for bike lanes.

Segment 52. Carey Avenue - 8th Avenue to Kennedy Drive

Except for the divided portion at the south of this segment, the road is adequate for bike lanes. It is recommended, however, that bike traffic be routed to the off-street system of paths in Lion's Park. Through cyclists will be likely to use Carey anyway, but provision of lanes at the south end would be prohibitively expensive. See also the note on Lion's Park under the discussion of Segment 39.

Segment 53N. I-180/Warren Ave. - 5th Street to 22nd Street

Segment 53S. Central Ave./I-180 - 22nd Street to 5th Street

These segments are part of the major north-south connections through town. North of Lincolnway, lanes will be placed adjacent to the parking lanes of Warren and Central. The northern terminus of the lanes is at 22nd street, which is designated a bike route. Cyclists will be directed from Warren to Carey via 22nd Street by signs. Similarly, southbound cyclists will be directed from Pioneer to Central via 22nd Street.

South of Lincolnway, the wide shoulders on I-180 are recommended for marking as bike lanes. The lanes will be interrupted by turn lanes at the ends of the viaduct at Lincolnway (northbound) and 9th Street (southbound). South of 9th Street it is recommended that the shoulders be designated as lanes to 5th Street.

Some cyclists will prefer to use the 6 foot wide sidewalks over the I-180 viaducts. The barriers separating the sidewalks from the motor vehicle traffic give a clear sense of security. This segment is an exception to our normal bias against using sidewalks for bike traffic. Because of the relatively light pedestrian traffic, bike use of the sidewalks is not a problem. The railings are high enough to give cyclists a feeling that they will not fall over the side (unlike the Norris viaduct). There is no reason to force cyclists to use one or the other way across. Signs directed to cyclists at the beginning of the viaducts such as "BIKES USE SIDEWALK OR HIGHWAY SHOULDER" or a similar message should keep confusion to a minimum.

Lanes on the frontage streets (Warren and Central) between 5th Street and 9th Street are not recommended. These are 2-way streets, and there is barely space for one lane. Regardless of our intentions, lanes would be used as 2-way bike lanes, a hazardous condition. Bike route signs could be used to direct bikes to the 7th Street route (Segment 10) if that segment is designated as a route.

Upon completion of improvements to South Greeley Highway, the lanes may be extended from 5th Street to join the new lanes on South Greeley at about the I-80 overpass. This will complete a

major north-south connection to downtown. Turn lanes will interrupt the lanes at several points.

Segment 54. Not used.

Segment 55E. 19th Street - Dey Avenue to Converse Avenue

Segment 55W. 20th Street - 19th St. to Dey Ave (via 21st St)

Most of the width of 19th Street is adequate for bike lanes. Between Thomes Ave. and Pioneer Ave. the face-to-face of curb width is 52.5 feet, about 3.5 feet less than required. The options are:

- (1) Use 11' wide motor vehicle lanes and 7' parking lanes this block
- (2) Interrupt the bike lane on this block
- (3) Begin 3-lane traffic at Pioneer rather than at Thomes

The layout accompanying this report assumes option (1), but either of the others could be used as decided by the traffic department.

East of Logan, the eastbound lane is adequate for a bike lane if the motor vehicle lane can be reduced to 11 to 11 1/2 feet in width. Otherwise, the lane will end at Logan. The layout assumes that 19th Street can be used with this slight reduction in motor vehicle lane width.

The width of 20th Street varies. There are several portions where width is not adequate for bike lanes. Rather than continuously begin and end lanes, it is recommended that 20th Street not be considered for lanes. To complete the 19th-20th Street couplet, it may be desirable to designate Segment 55W a bike route, possibly with a lane on the short section of 19th Street west of Converse Ave.

Signs at the intersection of 19th Street and Converse should notify cyclists that the lane on 19th Street ends, and direct them to the off-street path on Converse north of Pershing.

Segment 56. Not used.

Segment 57. Henderson Drive - Pershing to Lincolnway
Lincolnway - Henderson Drive to Pershing

This segment has adequate width of pavement for bike lanes on both streets. However, the intersection of Henderson Drive and Lincolnway will be a major problem for cyclists wishing to cross Lincolnway and continue east. Vehicle traffic is high volume, high speed, and there are no signals. This segment is not essential to the integrity of the system, and the city may wish to defer its implementation. We have included the segment in the layout, but would not give it a particularly high priority.

Segment 58. Van Buren Ave. - Dell Range to US-30
Segment 59. US-30 - Van Buren to College Drive

We investigated this segment to see if a connection could be made to the Dry Creek Greenway path for people east of College. The location of the segments is very desirable but it is not suitable. Van Buren varies in width and is not wide enough for bike lanes for most of its length. The shoulders on US-30 become too narrow east of Pershing Blvd. These segments are not recommended for inclusion.

Segment 60. Airport Parkway - Morrie Avenue to Converse

This segment is suitable for bike lanes if parking is removed from Airport Parkway. The city traffic department is considering such action. If parking is not removed, the width is inadequate. This segment would become an important link if Morrie Avenue north of Pershing is improved and lanes provided there (Segment 3).

A major safety issue is related to this segment. Cyclists travelling from the residential areas between Pershing and Airport Parkway north to Dell Range Blvd. have to cross Converse on a curve across high volume high speed traffic. A particular concern is children wishing to go to the athletic fields near Dell Range and Converse. This problem exists whether or not Airport Parkway is provided with bike lanes, and is not properly the subject of this study. But lanes could be interpreted as official encouragement to make this trip, so the decision to provide lanes on Airport Parkway should be made in the context of this problem.

None of the obvious alternatives is attractive. Traffic signals would be expensive and would hinder north-south traffic on Converse that the recent improvements were intended to expedite. An overpass is not justified by the expected cycle and pedestrian traffic. We believe the best of a bad set of alternatives would be to construct an off-street path on the west side of Converse from Airport Parkway to Dell Range. This would permit cyclists and pedestrians wanting to go to Dell Range east of Converse to cross at signals on Dell Range. Construction of such a path would have to consider drainage and right-of-way at the airport property line. Investigation and design of such a path is not part of this study, but placement of lanes on Airport Parkway is not recommended without a solution to this problem. The layout plan assumes such a solution and shows lanes on the Parkway.

Segment 61. Pershing Boulevard - Hynds Blvd. to Converse Ave.

This segment is not suited for bike lanes or bike traffic. The pavement condition is poor, joints between gutter and pavement are rough, there are protruding manholes and drainage inlet grates, and there is inadequate width. The City of Cheyenne has plans to reconstruct this segment. The reconstruction plans should include

bike lanes if there is adequate right-of-way. A decision on whether to provide adequate width for bike lanes could depend on a decision on the relative importance of trees and bike lanes, an issue that is well outside the scope of this study.

APPENDIX B

LIST OF RECOMMENDED SEGMENTS

Segments recommended for bike lanes:

4N	CAREY AVENUE - 19TH ST. TO 2ND AVENUE
4S	PIONEER AVENUE - PERSHING BLVD TO 19TH ST.
5	RANDALL AVENUE - CAREY AVE TO MCCOMB AVE
7	24TH ST - DILLON TO MISSILE DR
	WESTLAND RD - MISSILE DRIVE TO OLD HAPPY JACK RD
11	WEST ALLISON RD - CRIBBON AVE. TO WALTERSCHIED RD
12	WALTERSCHIED RD. - DEMING DR. TO W. COLLEGE DR.
15	COLLEGE DR. - AVENUE "C" TO I-80
16	PARSLEY BLVD. - W. JEFFERSON RD TO AMES AVE
21	HAPPY JACK RD - CROW CREEK TO ROUNDTOP ROAD
22	COLLEGE DR. - I-80 TO FOURMILE ROAD
23	FOURMILE ROAD - COLLEGE DR. TO YELLOWSTONE
28	CAMPSTOOL ROAD - FRONTIER REFINERY TO I-80
28S	N. INDUSTRIAL RD/LEXINGTON RD - CAMPSTOOL RD TO COLLEGE DRIVE.
30	E. DELL RANGE - COLLEGE AVE. TO EL CAMINO
31	EVERS BLVD - VANDEHEI TO BISHOP BLVD
33	WESTERN HILLS - YELLOWSTONE TO BUFFALO AVE.
34	VANDEHEI - EVERS TO YELLOWSTONE
37	YELLOWSTONE RD - VANDEHEI TO DELL RANGE
39	CENTRAL AVE - YELLOWSTONE TO WALKER RD.
42	POWDERHOUSE RD - RIDING CLUB RD. TO DELL RANGE
53N	I-180/WARREN AVE. - 5TH STREET TO 22ND STREET
53S	CENTRAL AVE/I-180 - 22ND STREET TO 5TH STREET
55E	19TH STREET - DEY AVENUE TO CONVERSE AVE.
57	HENDERSON DRIVE - PERSHING TO LINCOLNWAY/ LINCOLNWAY - HENDERSON DRIVE TO PERSHING
60	AIRPORT PARKWAY - MORRIE TO CONVERSE

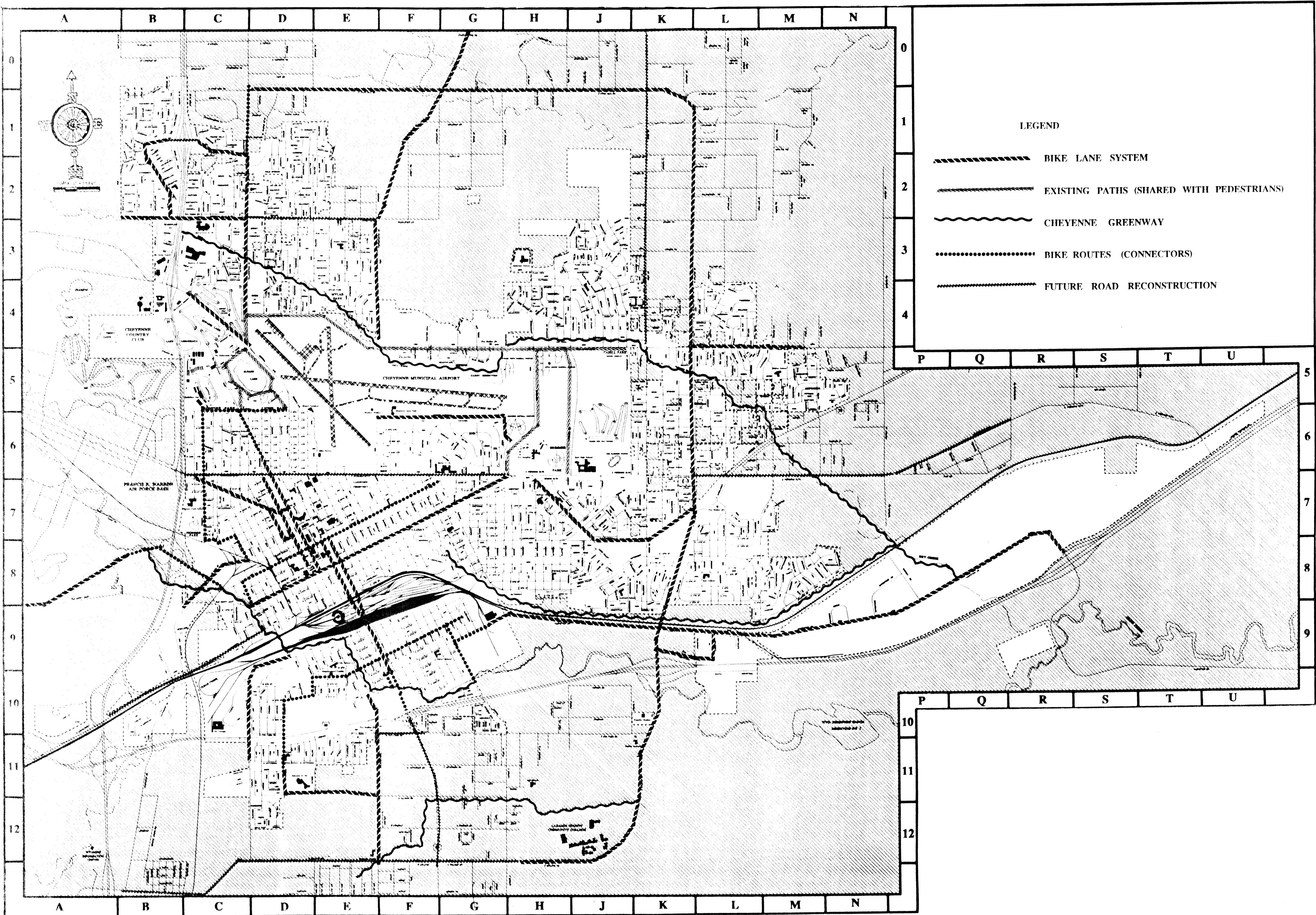
PRELIMINARY COST ESTIMATE – BIKE LANES

NOTE: ESTIMATES BASED ON WORK BY CITY OR COUNTY CREWS

[illegible]

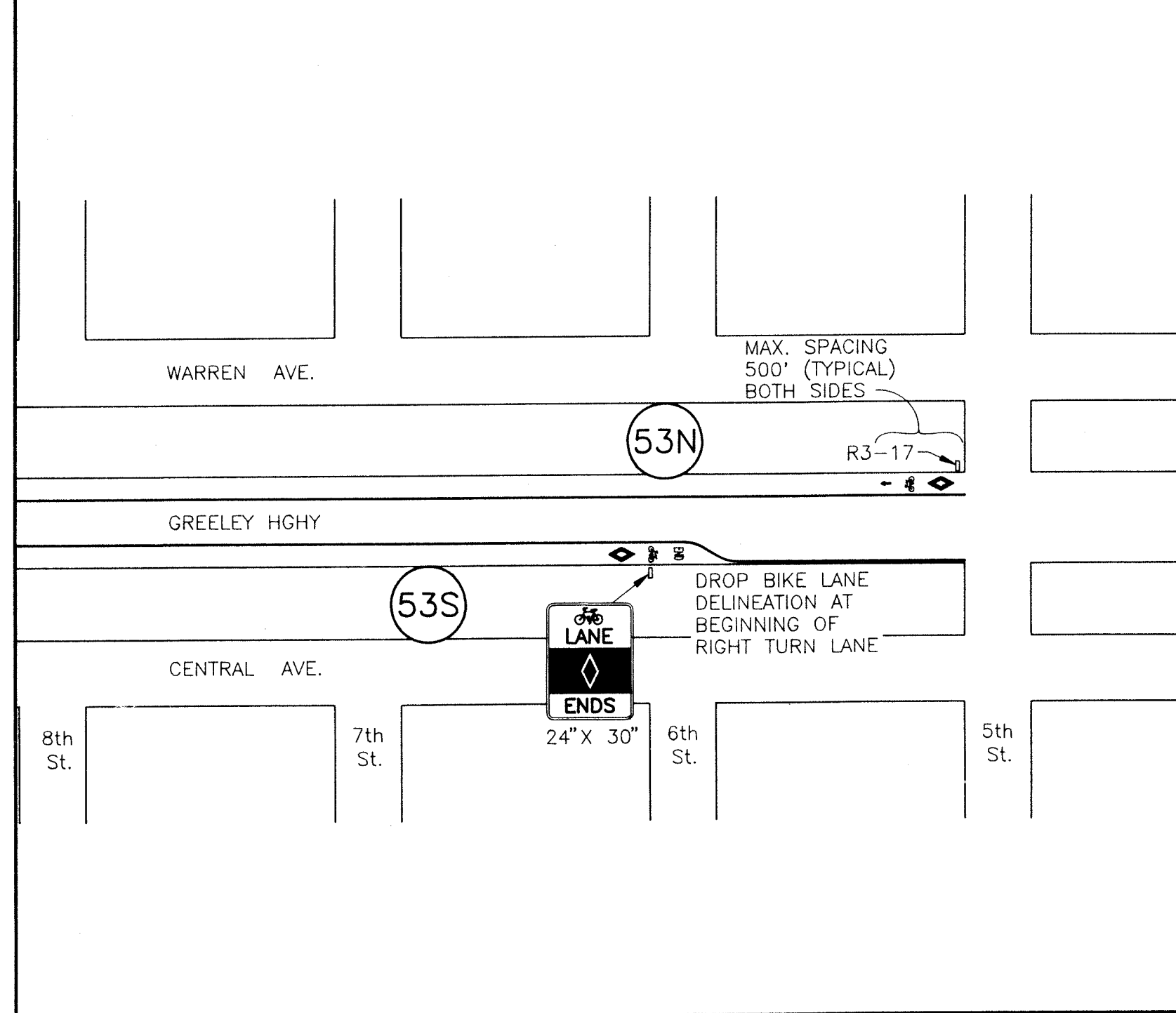
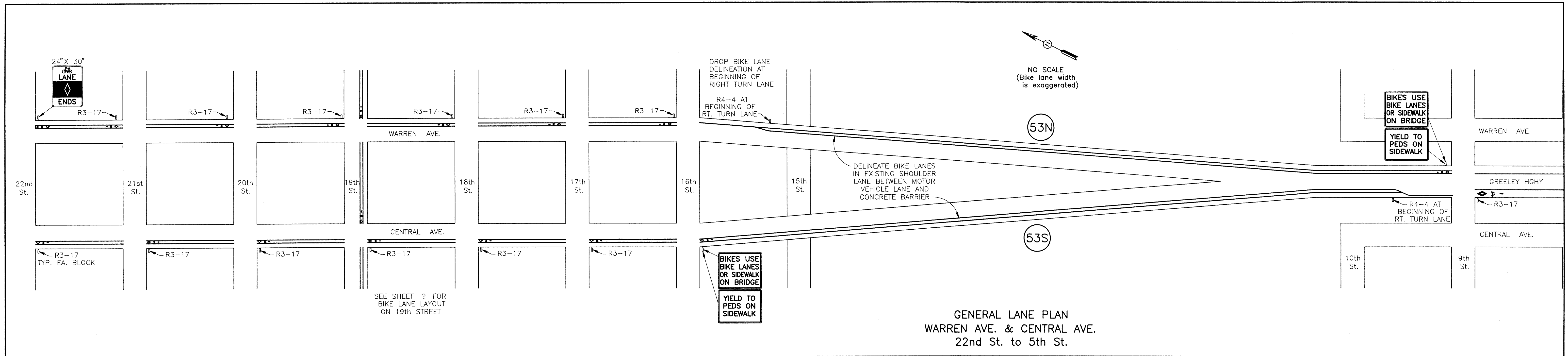
CHEYENNE AREA TRANSPORTATION PLANNING PROCESS

ON-STREET PLAN (BIKE LANES)

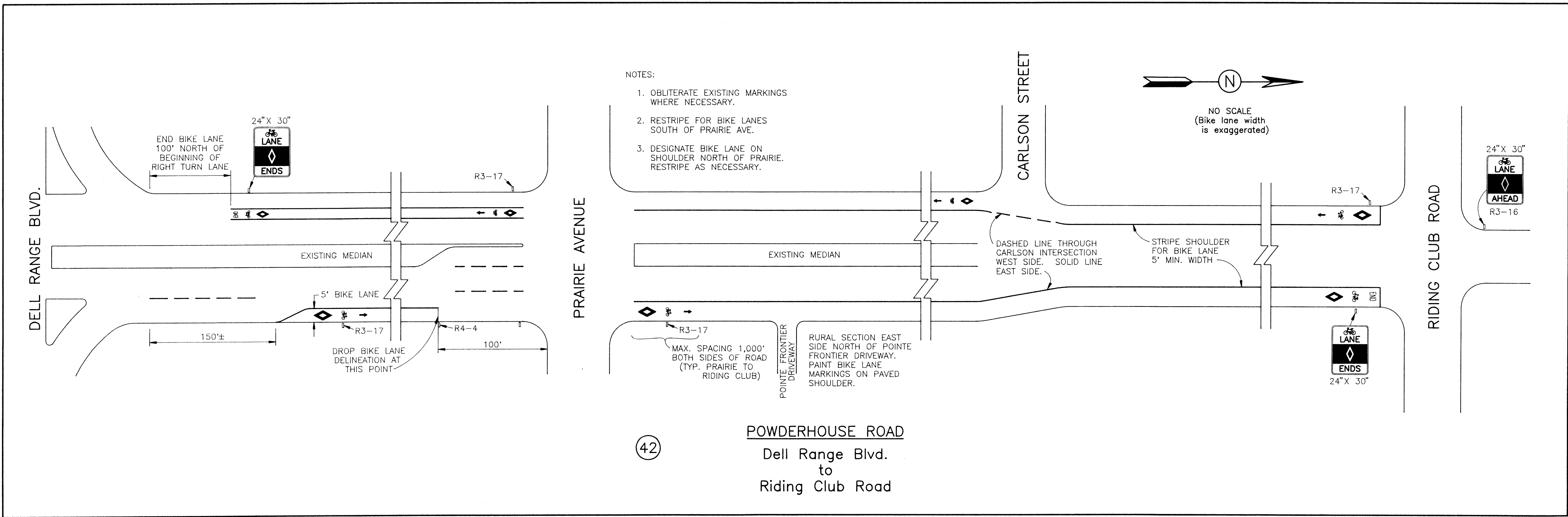
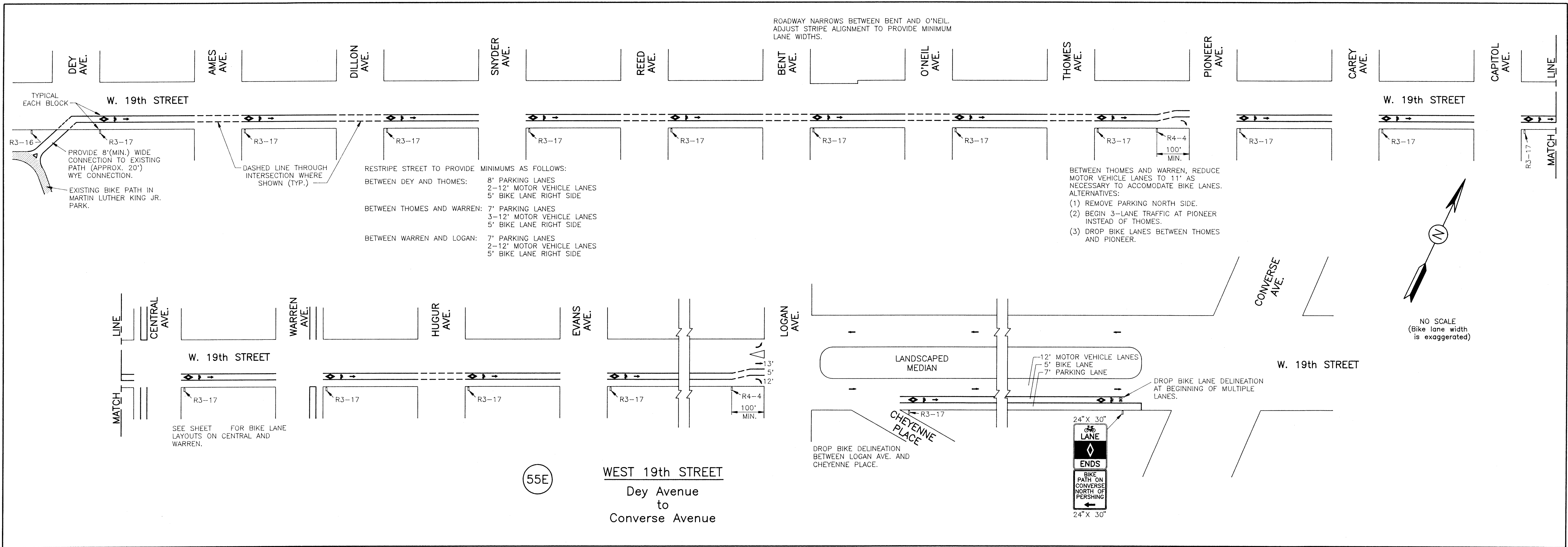


INDEX		
Segment I.D. recommended for Bike Lanes	Page Number	SEGMENT
4N	2, 3, & 4	CAREY AVE. - 19th ST. TO 2nd AVE.
4S	2, 3, & 4	PIONEER AVE. - PERSHING BLVD. TO 19th ST
5	4 & 5	RANDALL AVE. - CAREY AVE. TO McCOMB AVE.
200C 7	8	24th ST. - DILLON TO MISSILE DRIVE WESTLAND RD. - MISSILE DRIVE TO OLD HAPPY JACK ROAD
11	5	W. ALLISON RD. - CRIBBON AVE. TO WALTERSHEID ROAD
12	5	WALTERSHEID ROAD - DEMING DRIVE TO W. COLLEGE DRIVE
15	9	COLLEGE DRIVE - AVE. "C" TO I-80
16	9	PARSLEY BLVD. - W. JEFFERSON ROAD TO AMES AVE.
21	10	HAPPY JACK RD. - CROW CREEK TO ROUNDTOP ROAD
22	9	COLLEGE DRIVE - I-80 TO FOURMILE RD.
23	9	FOURMILE RD. - COLLEGE DRIVE TO YELLOWSTONE ROAD
28	9	CAMPSTOOL RD. - FRONTIER REFINERY TO I-80
28S	9	N. INDUSTRIAL RD./LEXINGTON RD. - CAMPSTOOL RD. TO COLLEGE DRIVE
3000 30	10	E. DELL RANGE - COLLEGE DRIVE TO EL CAMINO
1999 31	11	EVERS BLVD. - VANDEHEI AVE. TO BISHOP BLVD.
33	11	WESTERN HILLS - YELLOWSTONE ROAD TO BUFFALO AVE.
1999 34	11	VANDEHEI AVE. - EVERS BLVD. TO YELLOWSTONE ROAD
3000 37	11	YELLOWSTONE ROAD - VANDEHEI AVE. TO DELL RANGE BLVD.
39	11	CENTRAL AVE. - YELLOWSTONE ROAD TO WALKER ROAD
42	7	POWDERHOUSE RD. - RIDING CLUB ROAD TO DELL RANGE BLVD.
53N	6	I-80/WARREN AVE. - 5th ST. TO 22nd ST.
53S	6	CENTRAL AVE./I-80 - 22nd ST. TO 5th ST.
55E	7	19th STREET - DEY AVE. TO CONVERSE AVE.
3000 57	13	HENDERSON DR. - PERSHING BLVD. TO E. LINCOLNWAY
	14	E. LINCOLNWAY - HENDERSON DR. TO PERSHING BLVD.
2000 60	12	AIRPORT PKWY. - MORRIE AVE. TO CONVERSE AVE.

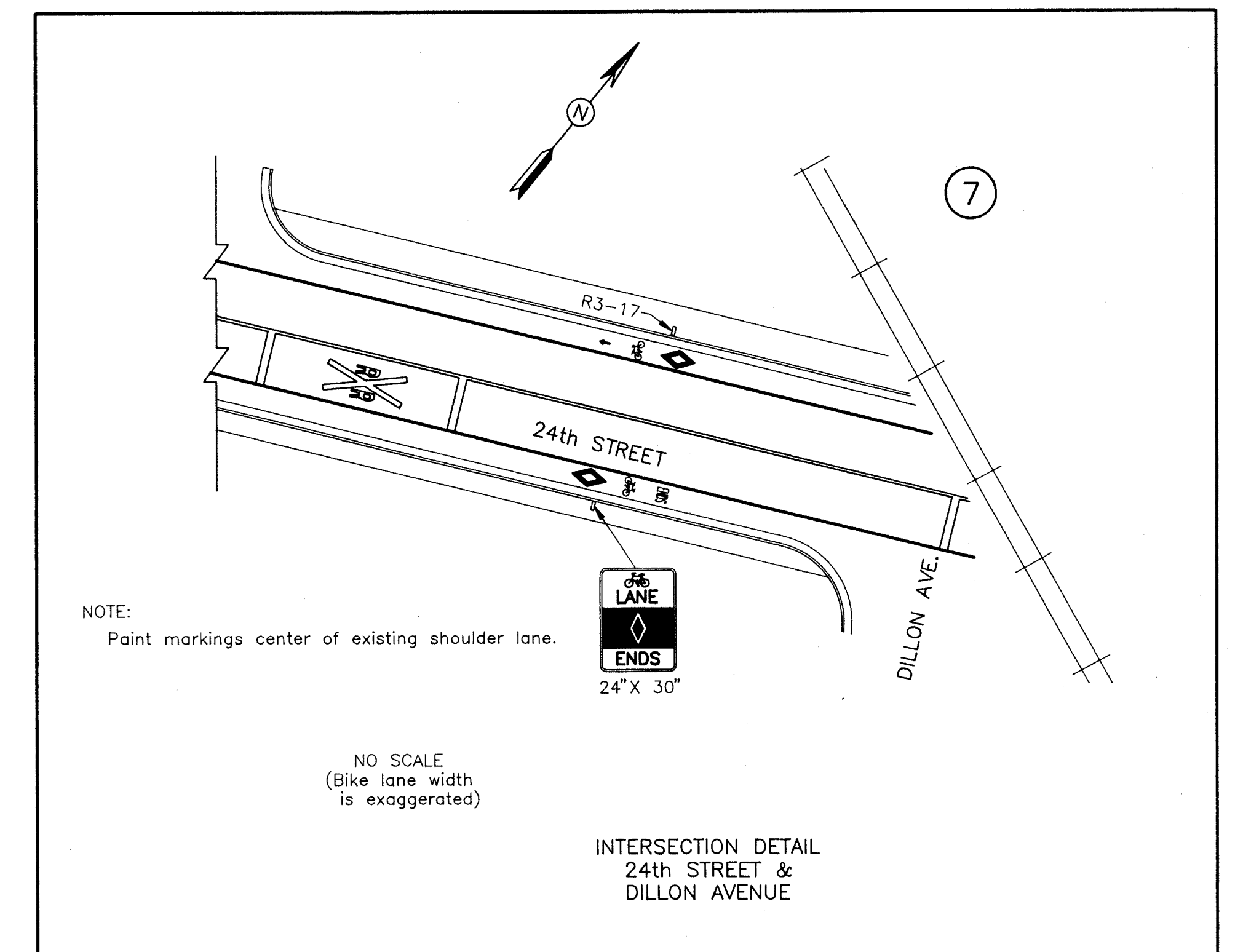
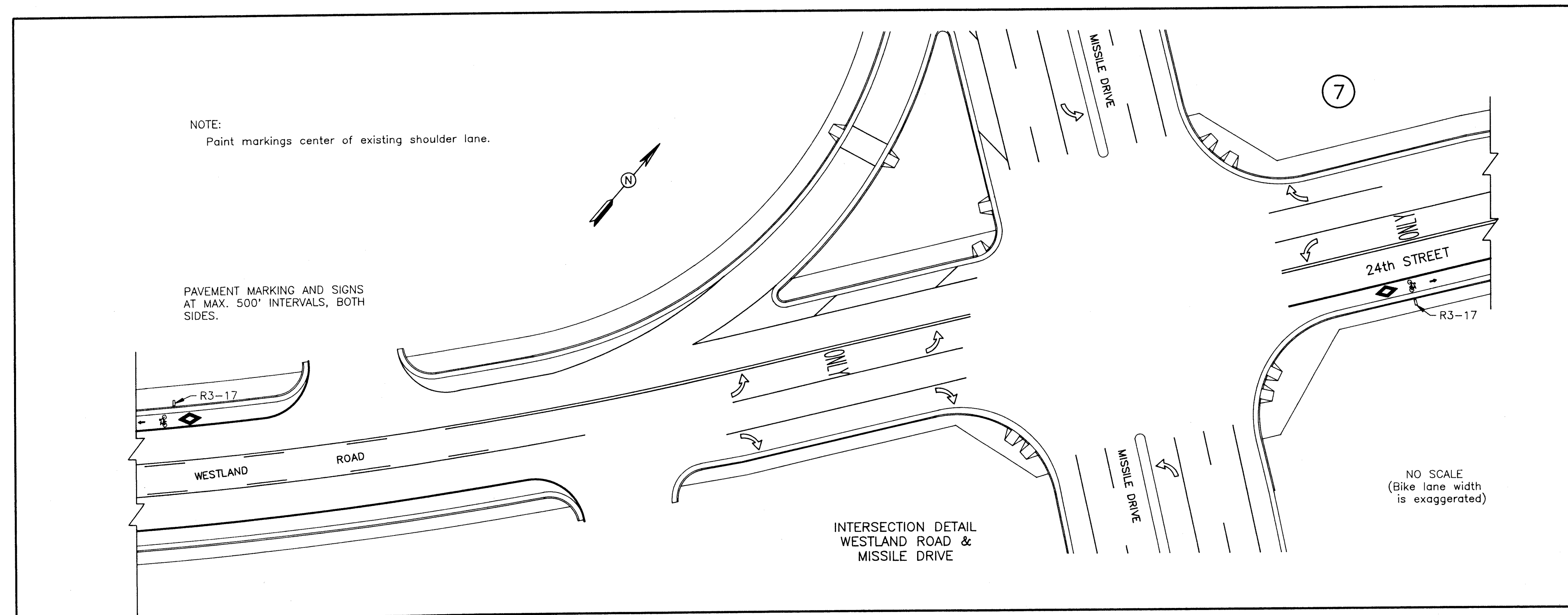
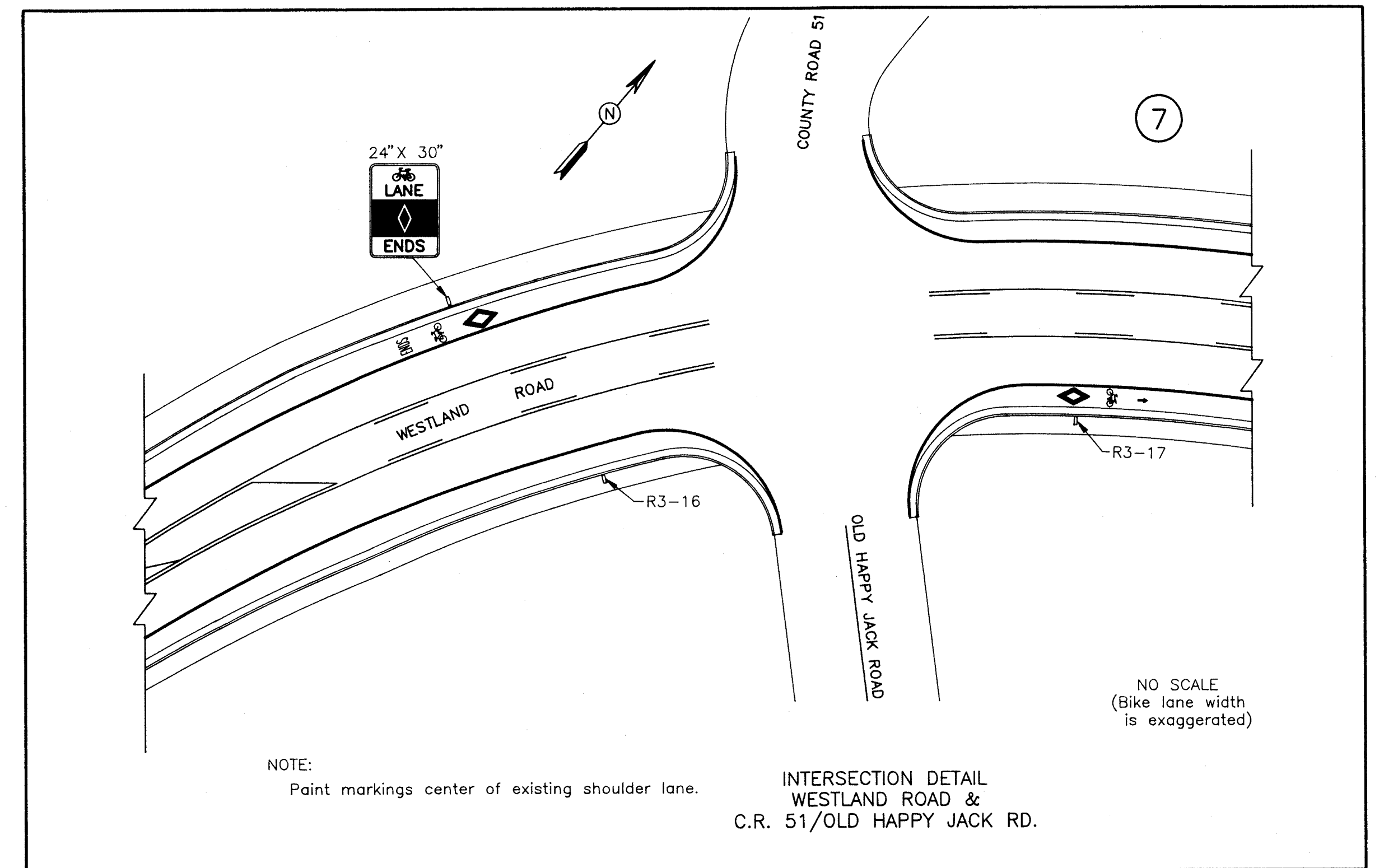
SEGMENT I.D. — (4N)



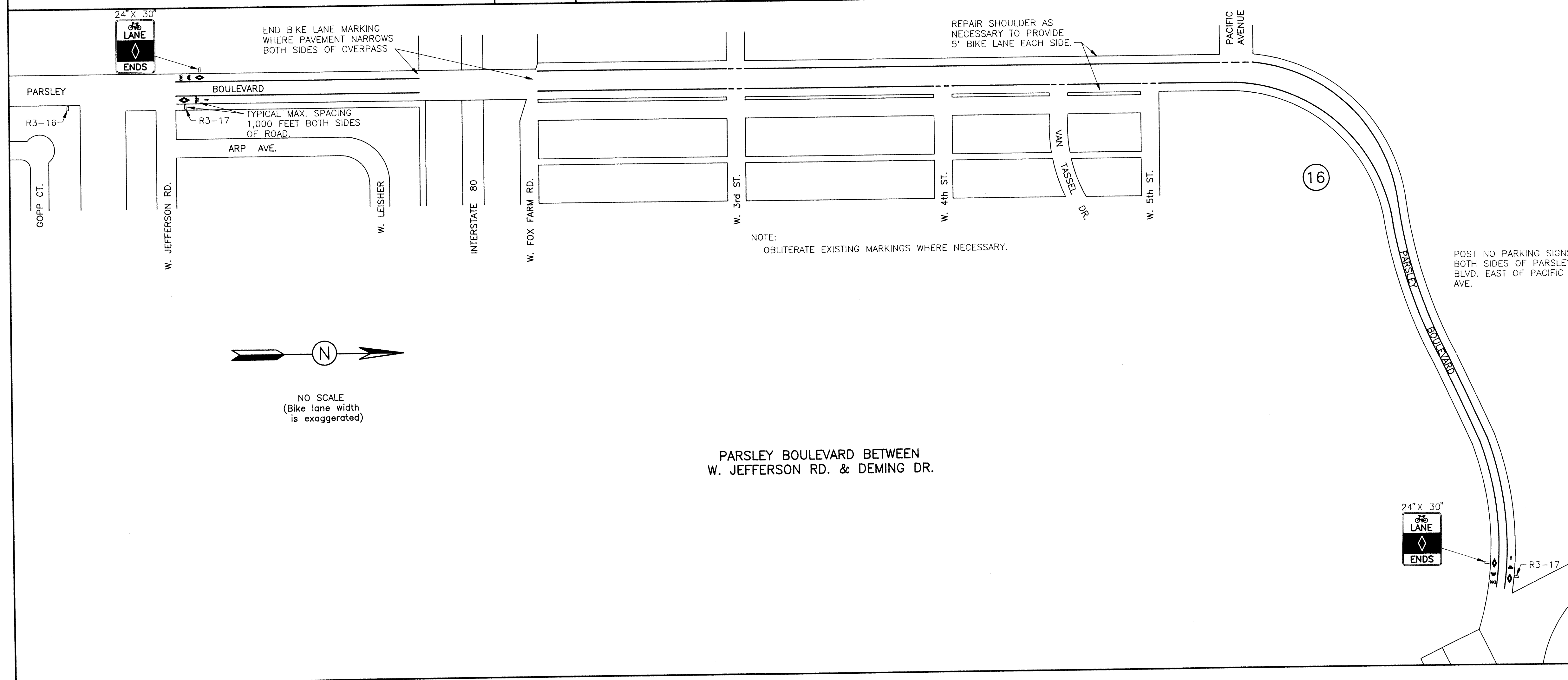
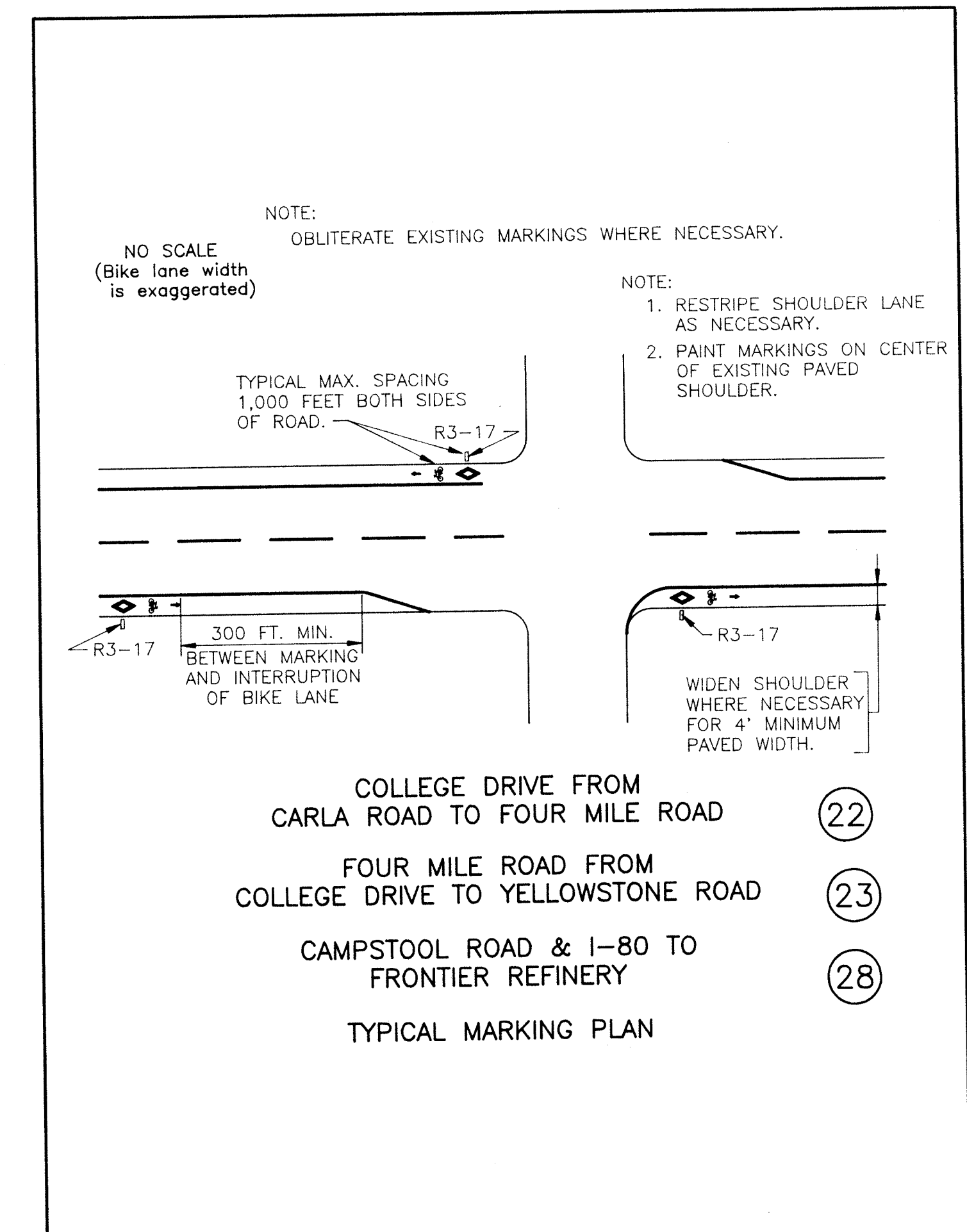
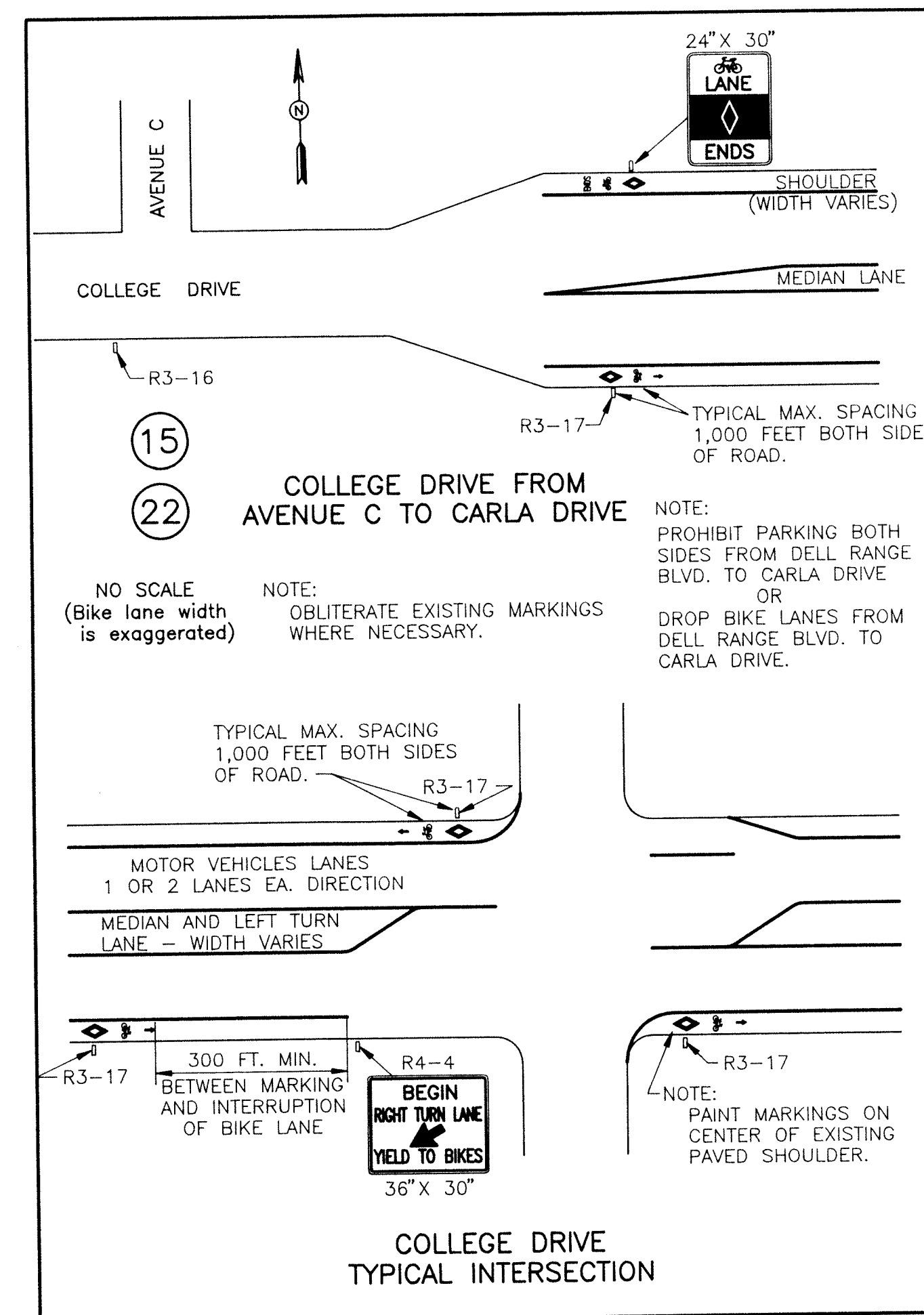
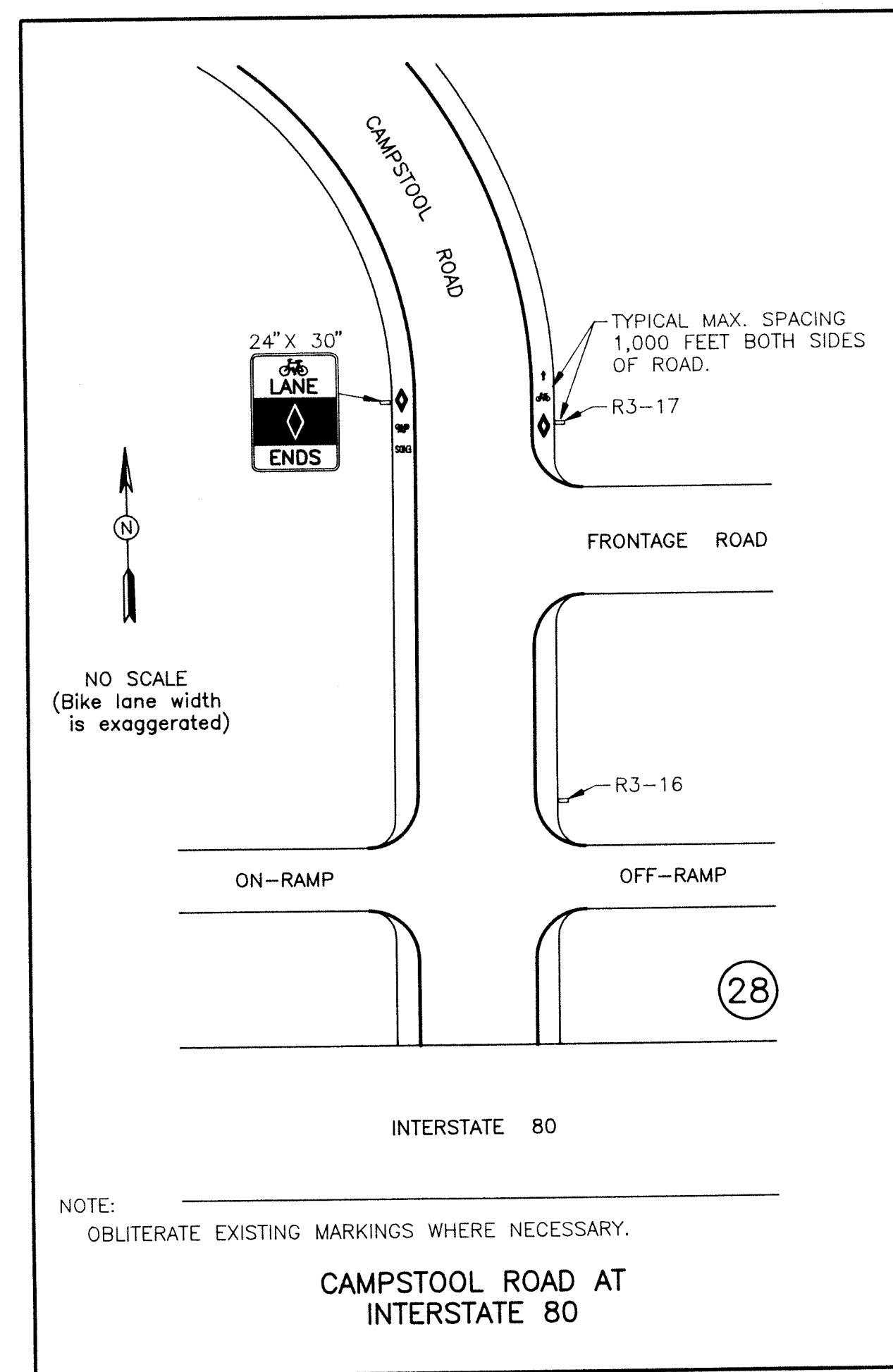
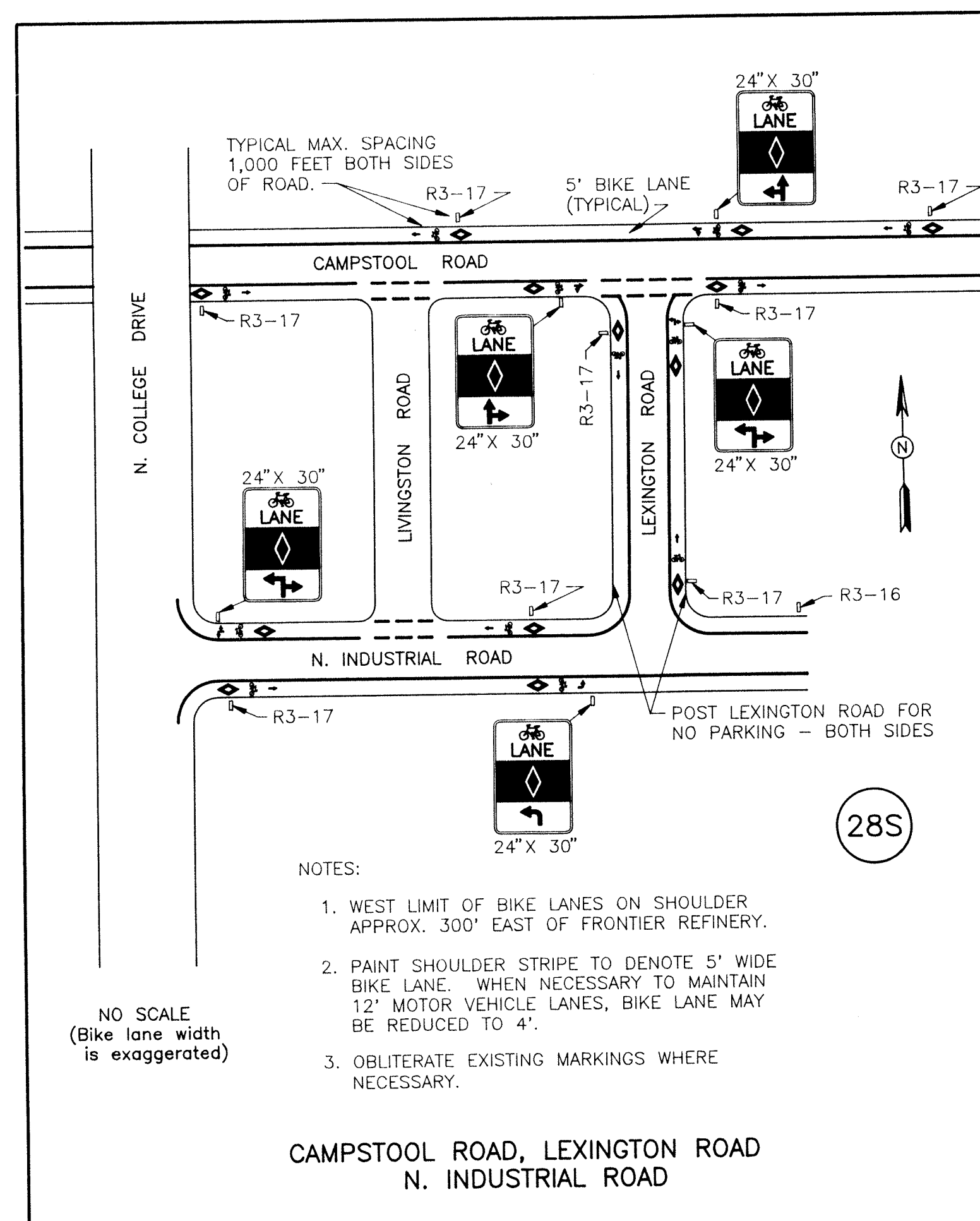
CHEYENNE AREA TRANSPORTATION PLANNING PROCESS	
ON-STREET PLAN (BIKE LANES)	
JACK NOBLITT & ASSOCIATES, P.C.	
ENGINEERS	PLANNERS
TRANSPORTATION	
1920 THOMES AVENUE SUITE 620	CHEYENNE, WYOMING 82001 (307) 634-9064
Design by: G.W.B.	File Name: BIKELN
Drawn by: L. Lorentz	Project No.: 9223.07
Checked by: J.L.N.	Date: 6/30/93 Sheet No. 6 of 14



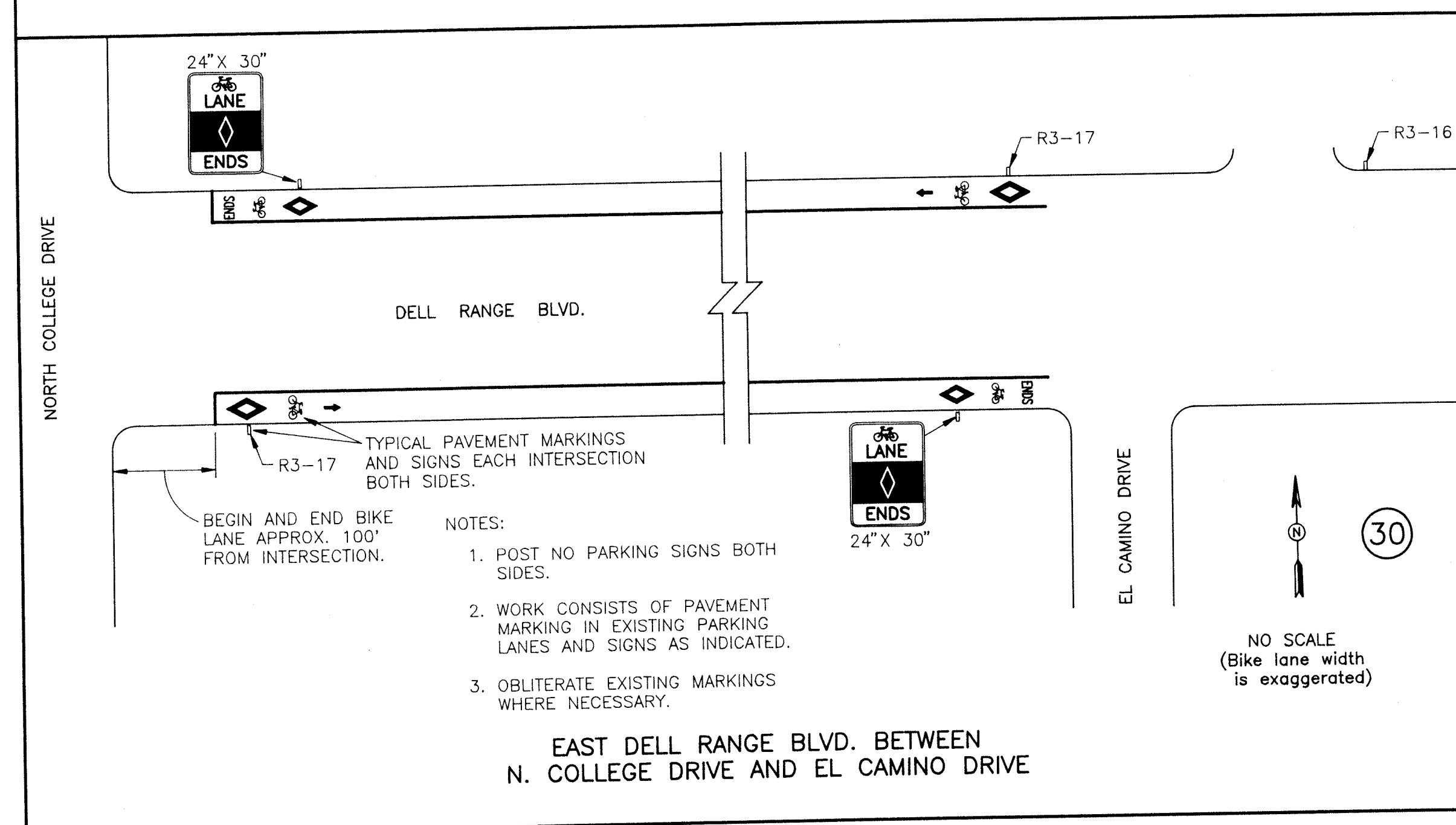
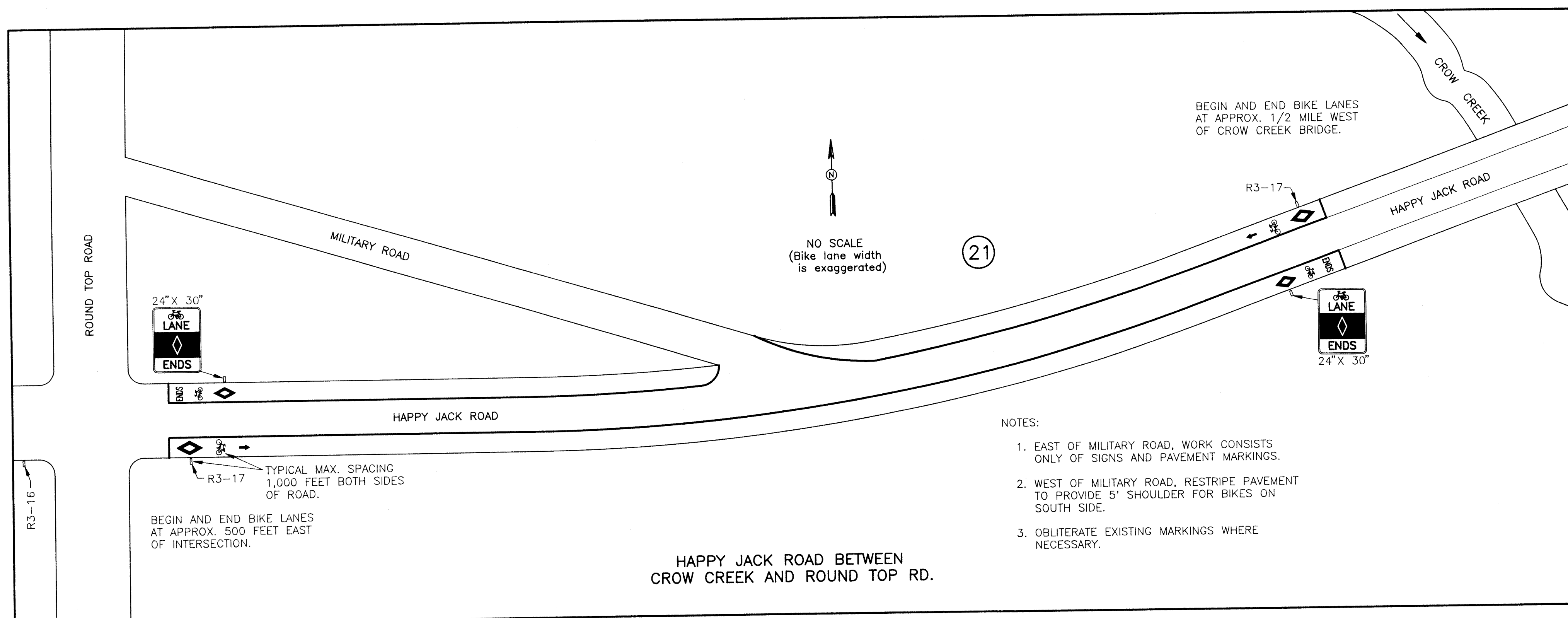
CHEYENNE AREA TRANSPORTATION PLANNING PROCESS	
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TRANSPORTATION	
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Design by: G.W.B.	File Name: BIKELN2
Drawn by: L. Lorentz	Project No.: 9223.07
Checked by: J.L.N. [Date: 6/30/93]	Sheet No. 7 of 14



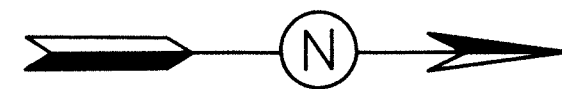
CHEYENNE AREA TRANSPORTATION PLANNING PROCESS	
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JACK NOBLITT & ASSOCIATES, P.C.	
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TRANSPORTATION	
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CHEYENNE AREA TRANSPORTATION PLANNING PROCESS	
ON-STREET PLAN (BIKE LANES)	
JACK NOBLITT & ASSOCIATES, P.C.	
ENGINEERS	PLANNERS
TRANSPORTATION	
1920 THOMES AVENUE SUITE 620	CHEYENNE, WYOMING 82001 (307) 634-9064
Design by: G.W.B.	File Name: BIKELN2
Drawn by: L. Lorentz	Project No.: 9223.07
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CHEYENNE AREA TRANSPORTATION PLANNING PROCESS			
ON-STREET PLAN (BIKE LANES)			
JACK NOBLITT & ASSOCIATES, P.C.			
ENGINEERS		PLANNERS	
TRANSPORTATION			
1920 THOMES AVENUE SUITE 620		CHEYENNE, WYOMING 82001 (307) 634-9064	
Design by: G.W.B.		File Name: BIKELN2	
Drawn by: L. Lorentz		Project No.: 9223.07	
Checked by: J.L.N.		Date: 6/30/93	Sheet No. 10 of 14



NO SCALE
(Bike lane width
is exaggerated)

NOTE:
BIKE LANES ON WESTERN HILLS
BLVD. CONTINGENT ON RESTRIPEING
FOR THREE-LANE CONFIGURATION.
SEE DETAIL

YELLOWSTONE ROAD PAVEMENT
MARKINGS IN EXISTING SHOULDER
LANES (TYP.)

END BIKE LANE MARKING
WHERE PAVEMENT NARROWS
BOTH SIDES OF OVERPASS

CHEYENNE AREA TRANSPORTATION PLANNING PROCESS	
ON-STREET PLAN (BIKE LANES)	
JACK NOBLITT & ASSOCIATES, P.C.	
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TRANSPORTATION	
1920 THOMES AVENUE SUITE 620	CHEYENNE, WYOMING 82001 (307) 634-9064
Design by: G.W.B.	File Name: BIKELN2
Drawn by: L. Lorentz	Project No.: 9223.07
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CHEYENNE MUNICIPAL AIRPORT

AIRPORT PARKWAY

CHESHIRE DRIVE

MORRIE AVE.

EAST 5th AVE.

AIRPORT PARKWAY

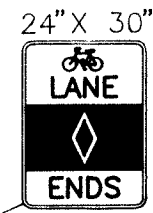
AIRPORT PARKWAY

POST BOTH SIDES OF AIRPORT PARKWAY "NO PARKING"

NO SCALE
(Bike lane width
is exaggerated)

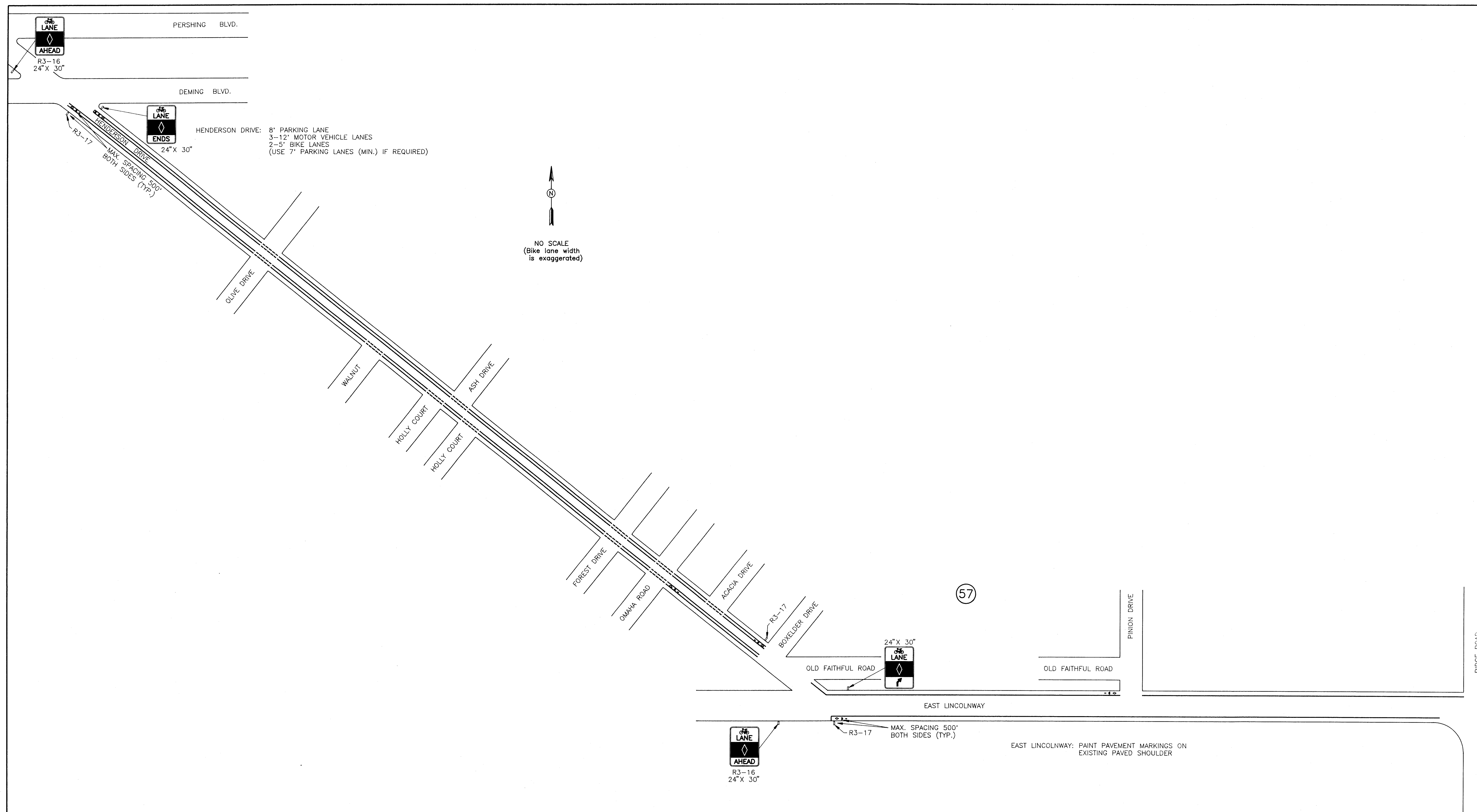
AIRPORT PARKWAY
2 EACH 6' BIKE LANES
AT CURB

60



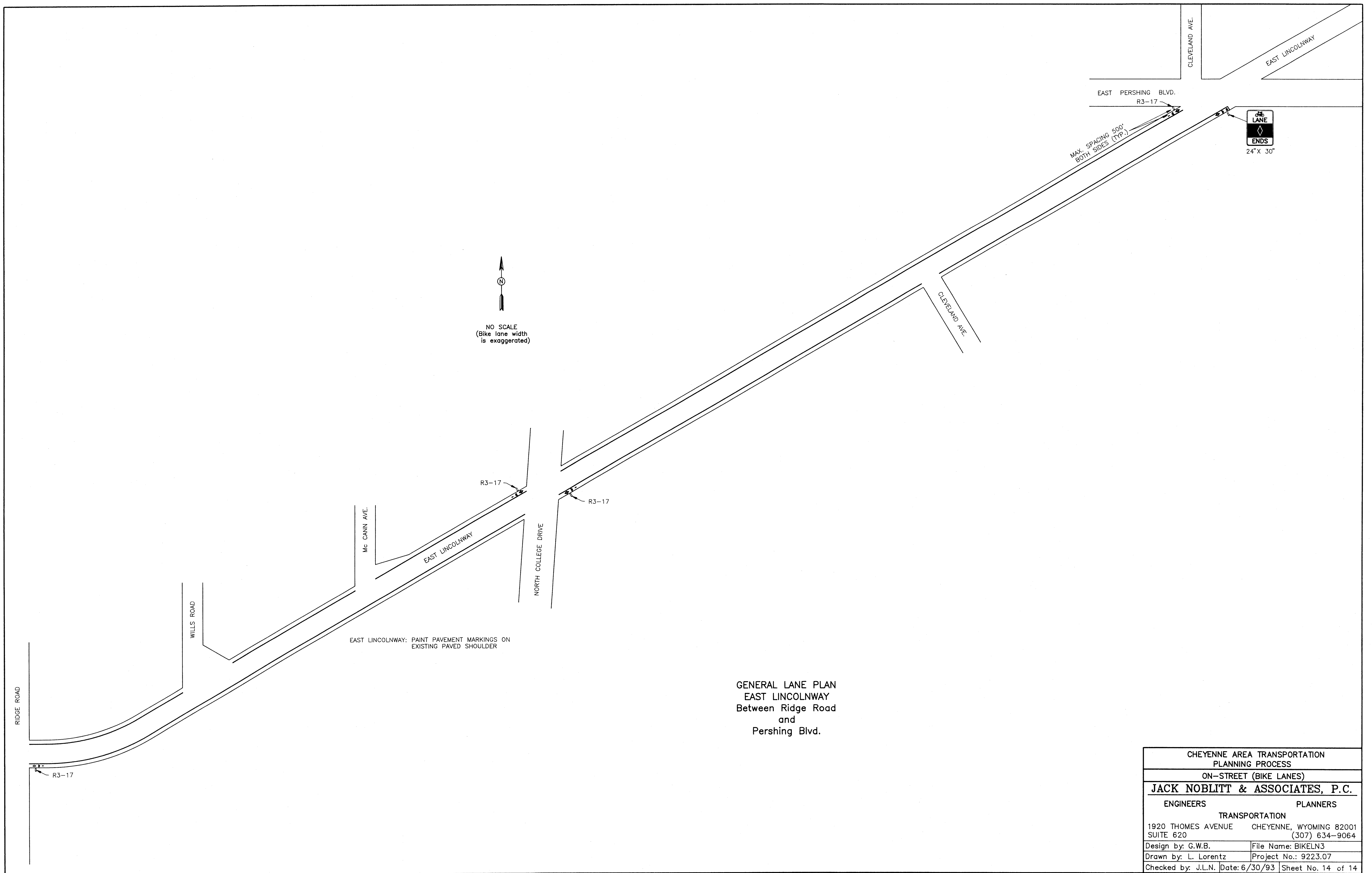
MAX. SPACING 1,000'
EACH SIDE (TYP.)

CHEYENNE AREA TRANSPORTATION PLANNING PROCESS	
ON-STREET (BIKE LANES)	
JACK NOBLITT & ASSOCIATES, P.C.	
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TRANSPORTATION	
1920 THOMES AVENUE SUITE 620	CHEYENNE, WYOMING 82001 (307) 634-9064
Design by: G.W.B.	File Name: BIKELN3
Drawn by: L. Lorentz	Project No.: 9223.07
Checked by: J.L.N.	Date: 6/30/93 Sheet No. 12 of 14



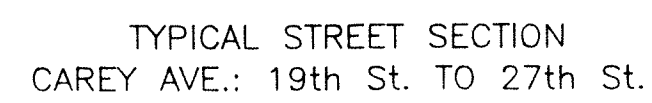
GENERAL LANE PLAN
EAST LINCOLNWAY
Between Deming Blvd.
and
Ridge Road

CHEYENNE AREA TRANSPORTATION PLANNING PROCESS	
ON-STREET (BIKE LANES)	
JACK NOBLITT & ASSOCIATES, P.C.	
ENGINEERS	PLANNERS
TRANSPORTATION	
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Design by: G.W.B.	File Name: BIKELN3
Drawn by: L. Lorentz	Project No.: 9223.07
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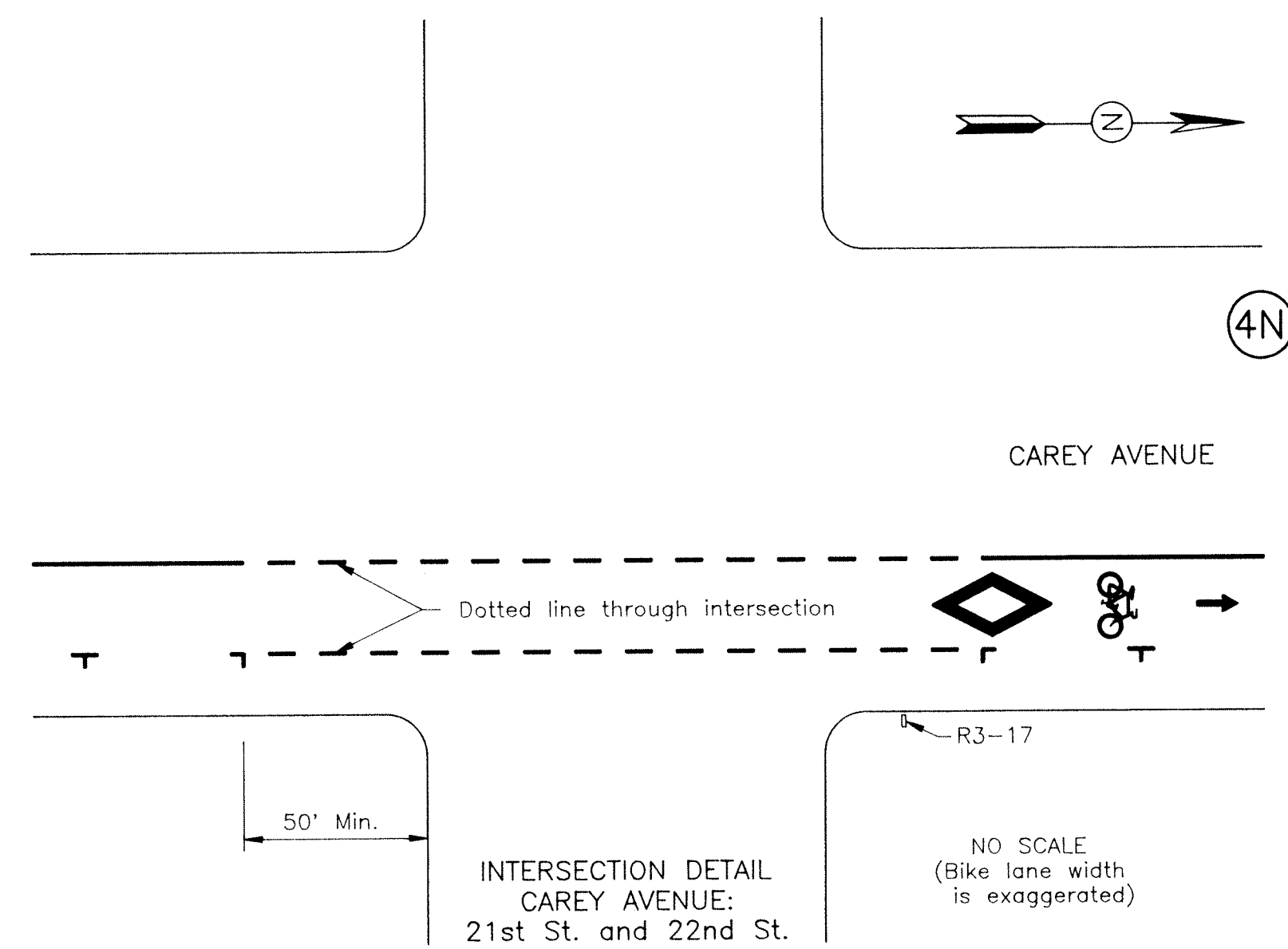
GENERAL LANE PLAN
EAST LINCOLNWAY
Between Ridge Road
and
Pershing Blvd.

CHEYENNE AREA TRANSPORTATION PLANNING PROCESS	
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TRANSPORTATION	
1920 THOMES AVENUE SUITE 620	CHEYENNE, WYOMING 82001 (307) 634-9064
Design by: G.W.B.	File Name: BIKELN3
Drawn by: L. Lorentz	Project No.: 9223.07
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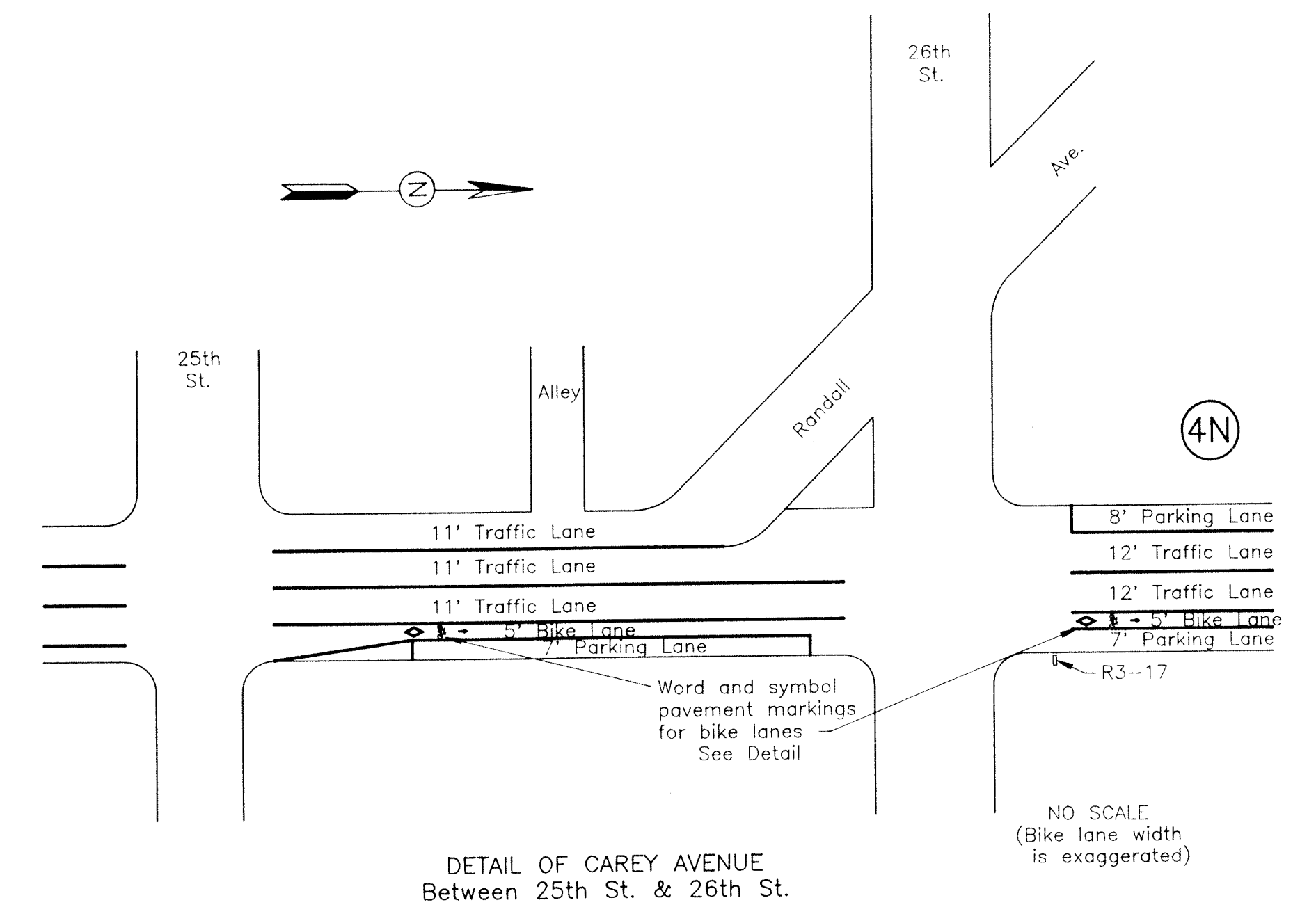


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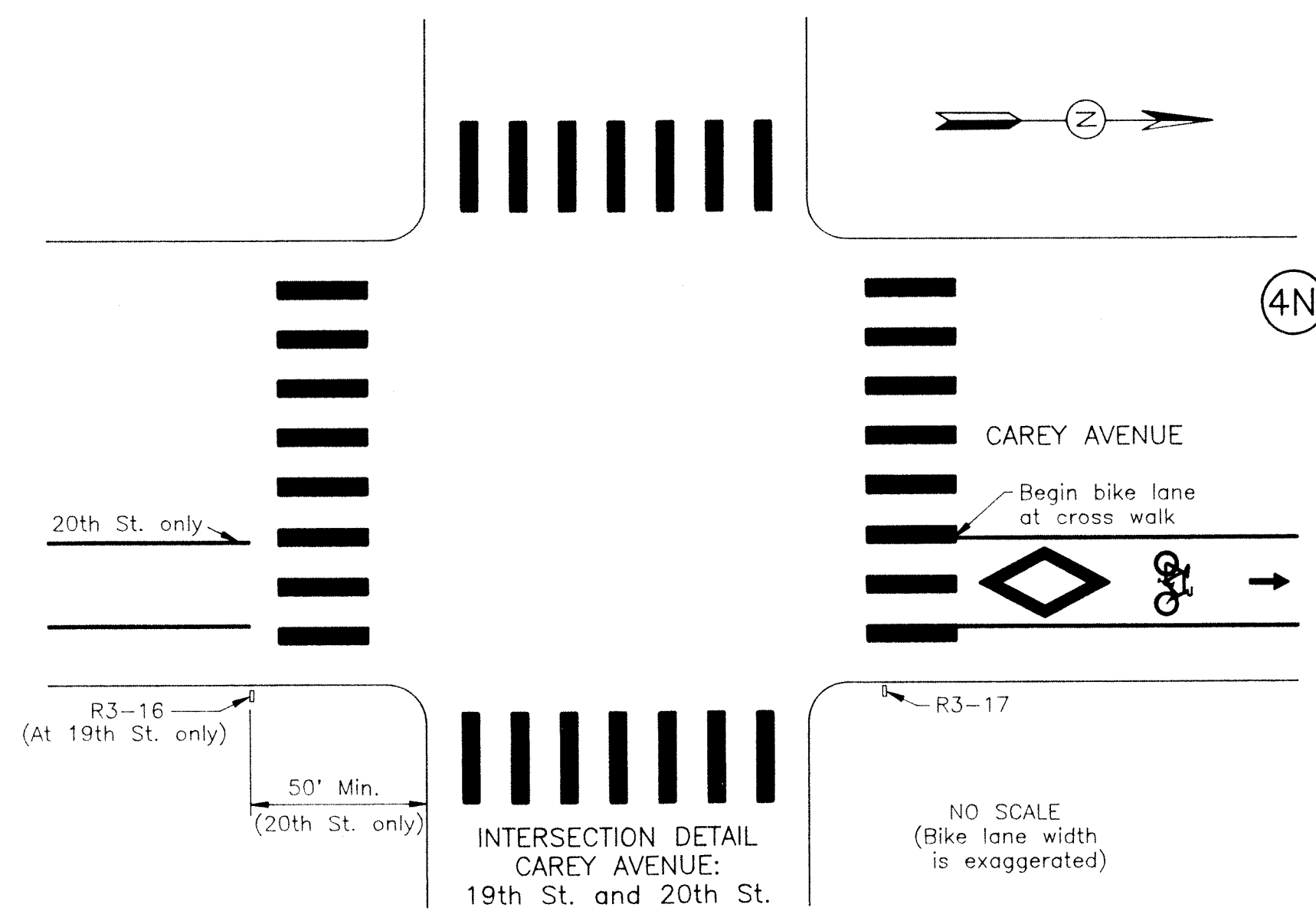
1. Parking lane detail as specified by City Traffic Dept.
2. All stripes 4" wide.
3. Dimensions shown are to center line of markings and face of curb.
4. Obliterate existing markings where necessary.



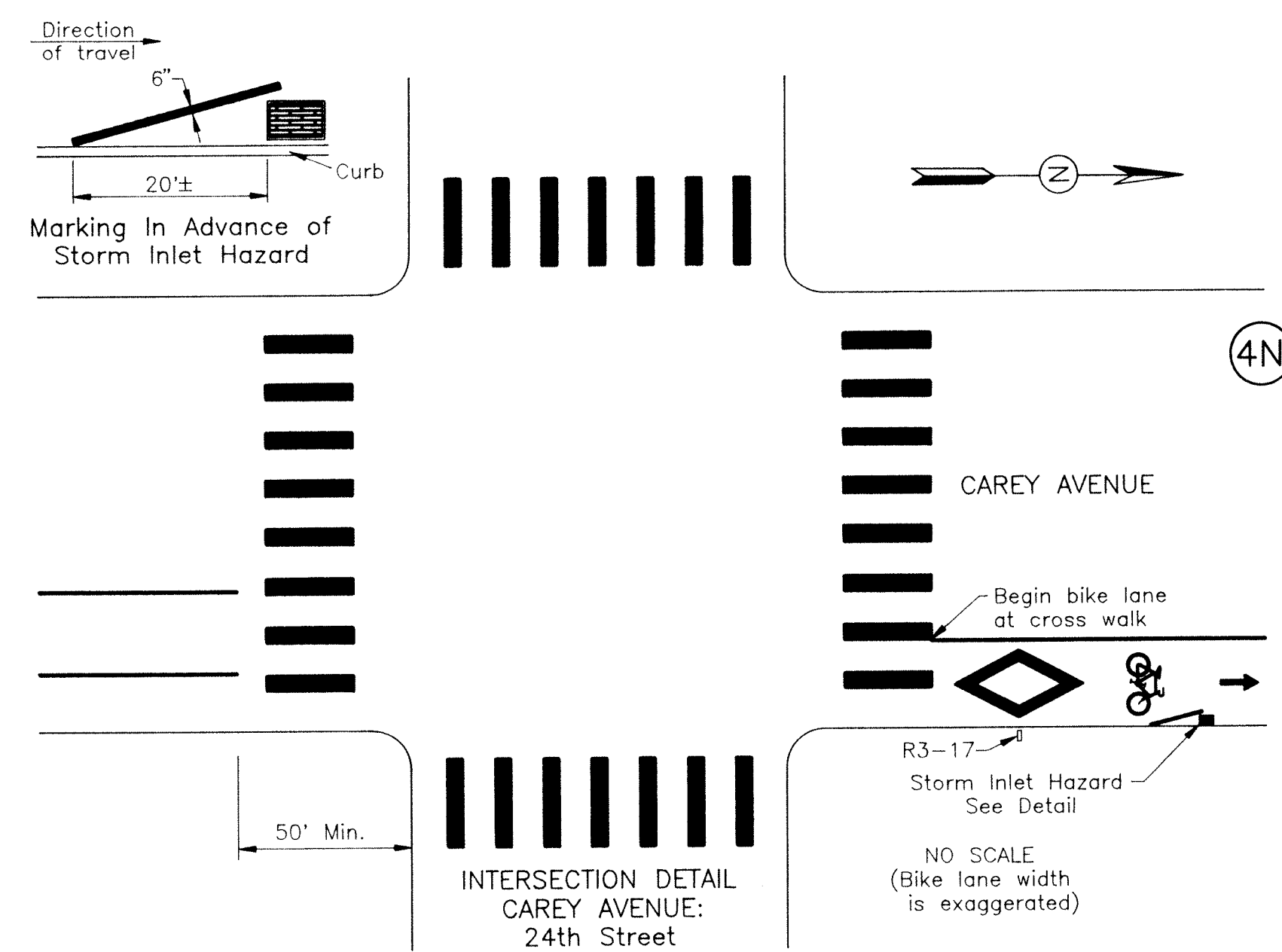
NOTE:
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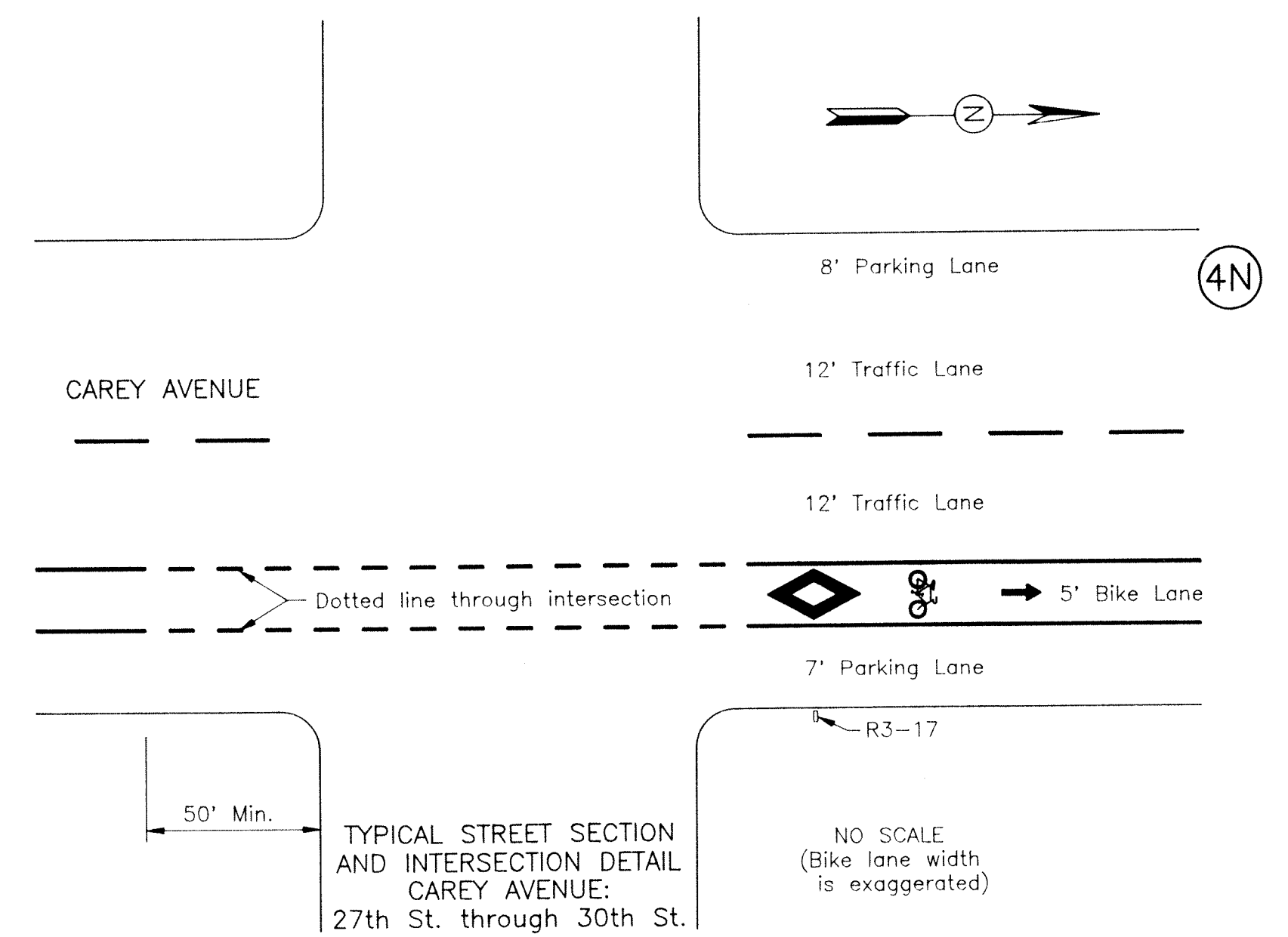
NOTE:
Obliterate existing markings where necessary.



NOTE:
Obliterate existing markings where necessary.

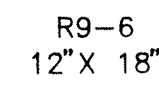
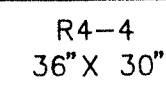
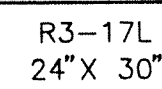
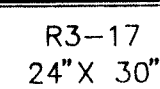
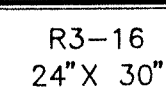


NOTE:
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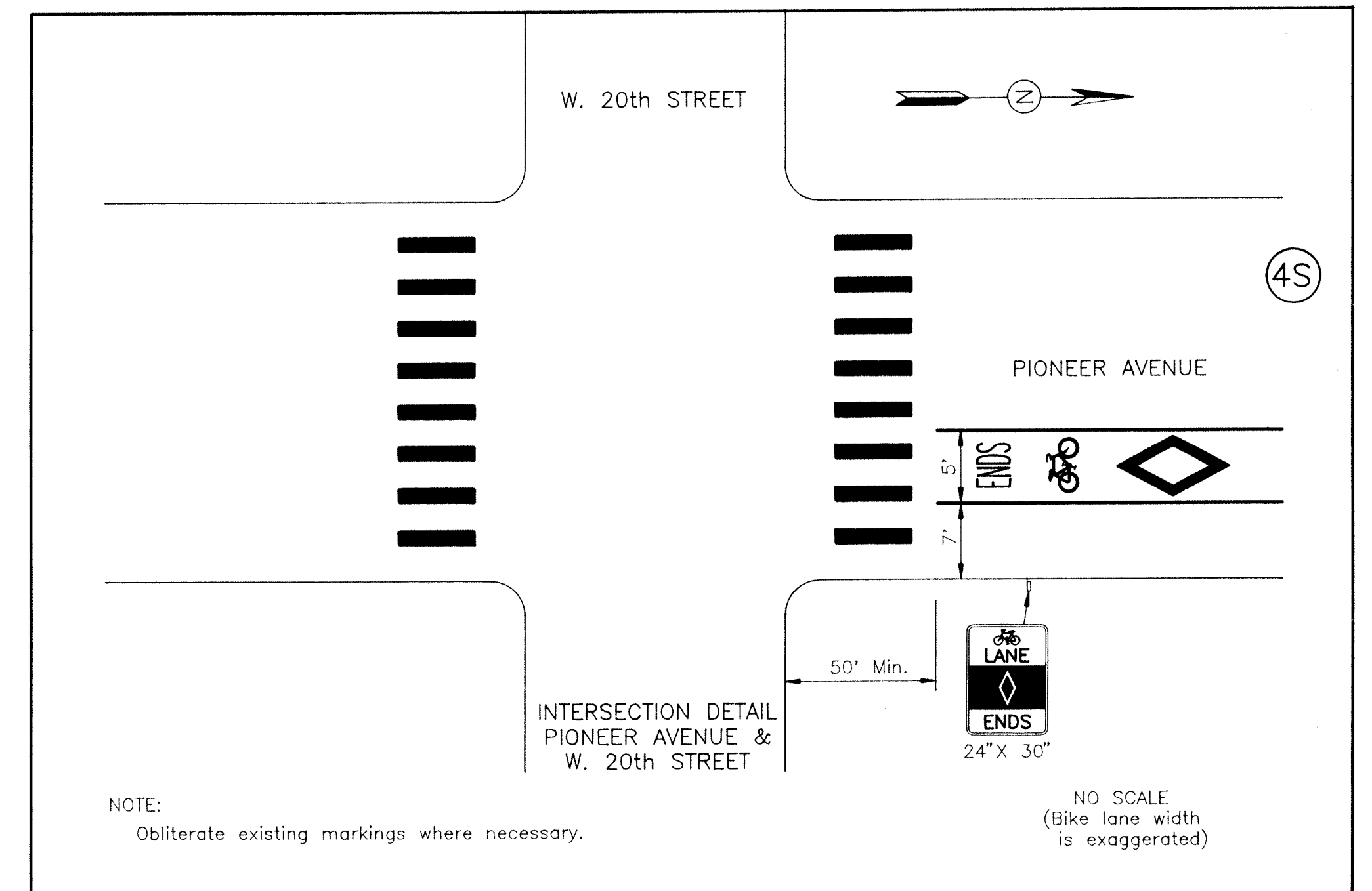
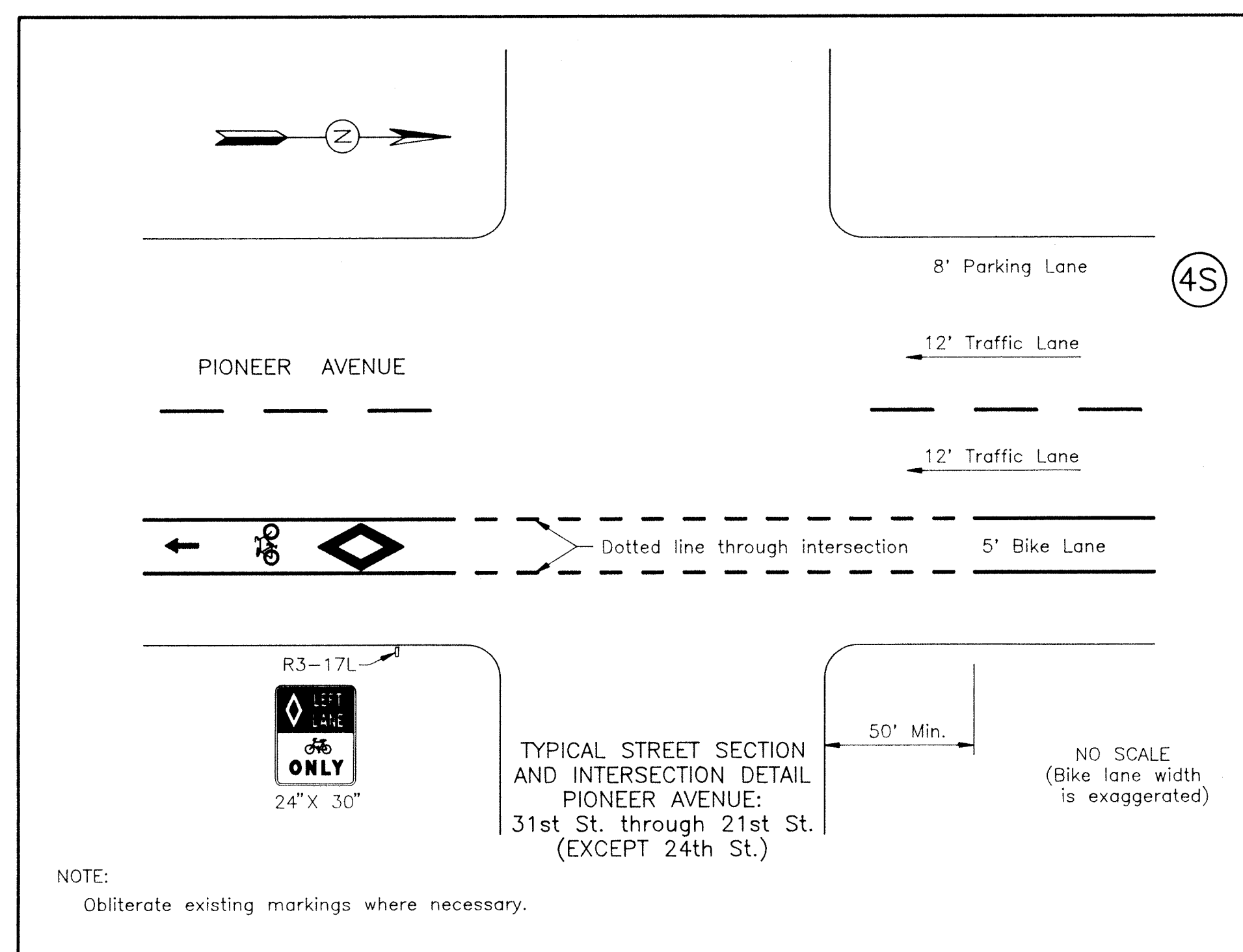
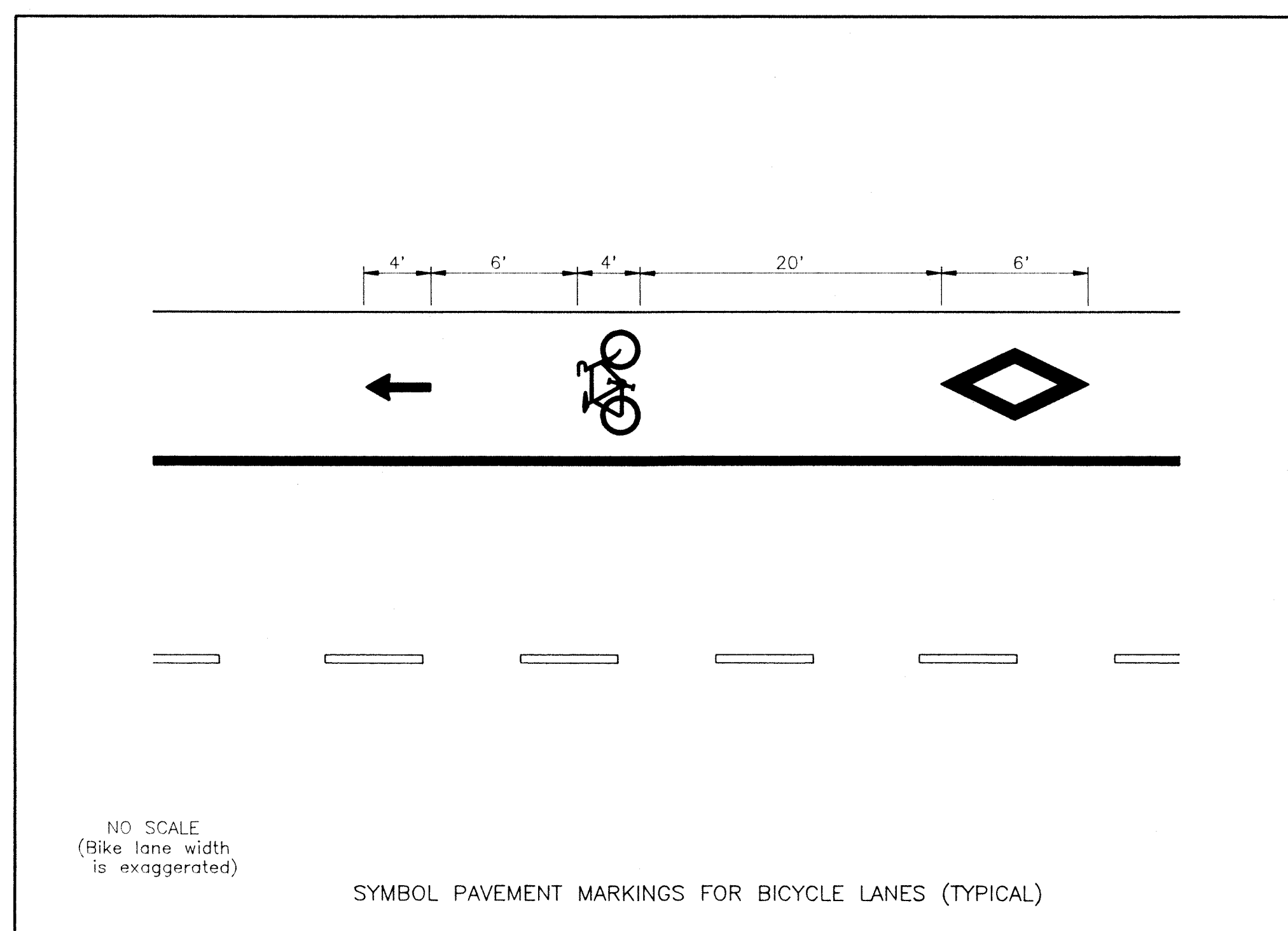
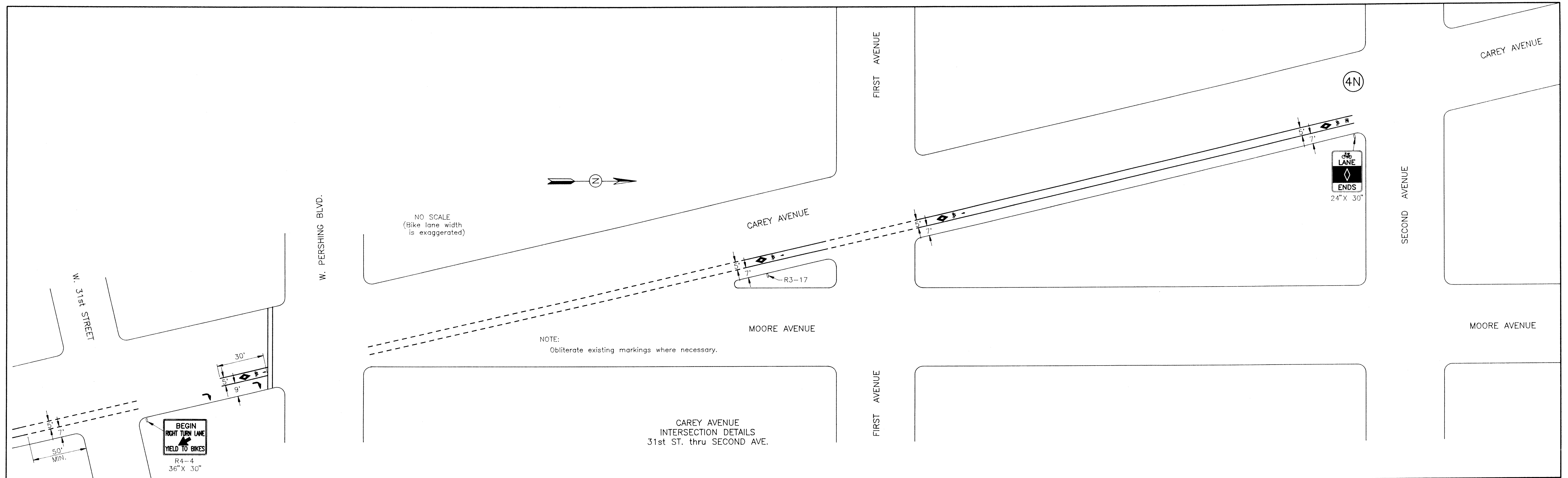


NOTE:
Obliterate existing markings where necessary.

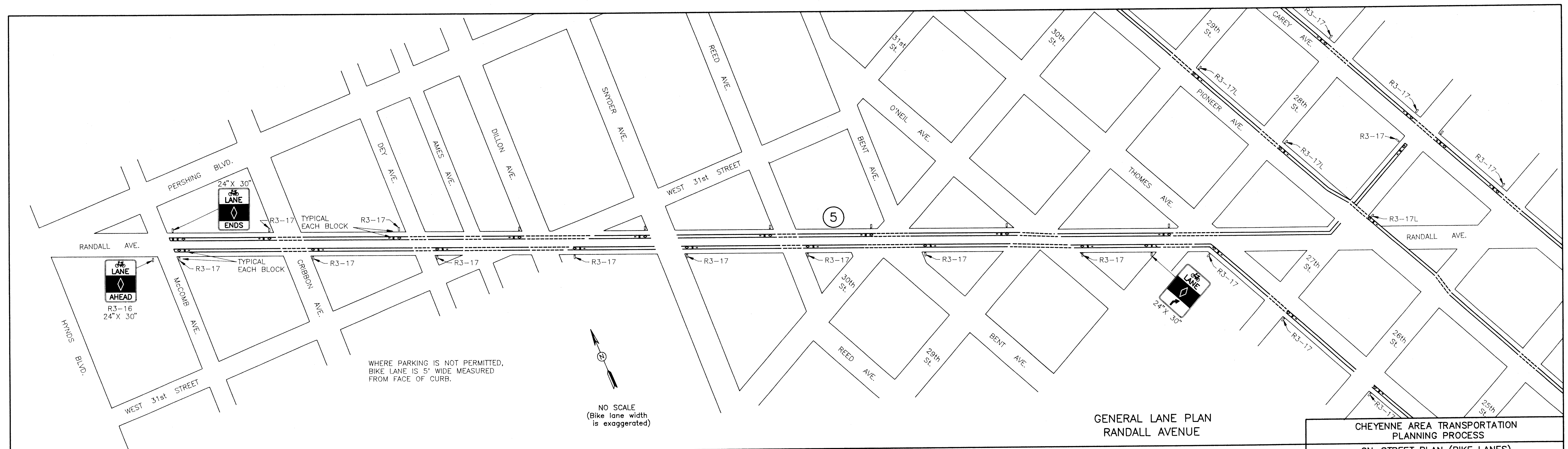
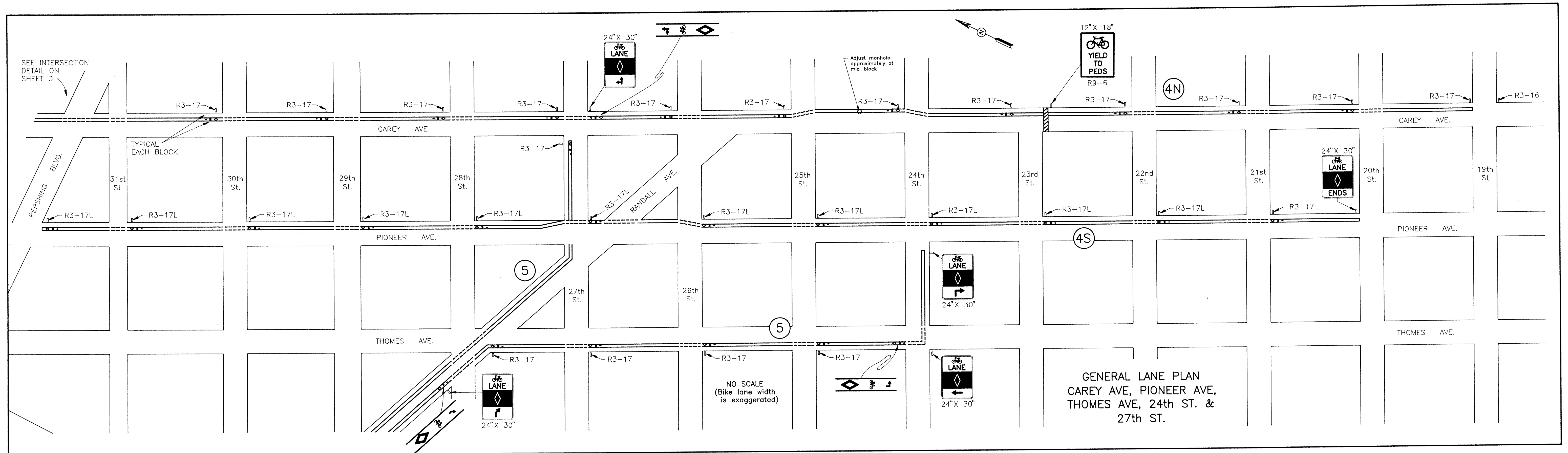
STANDARD SIGNS:



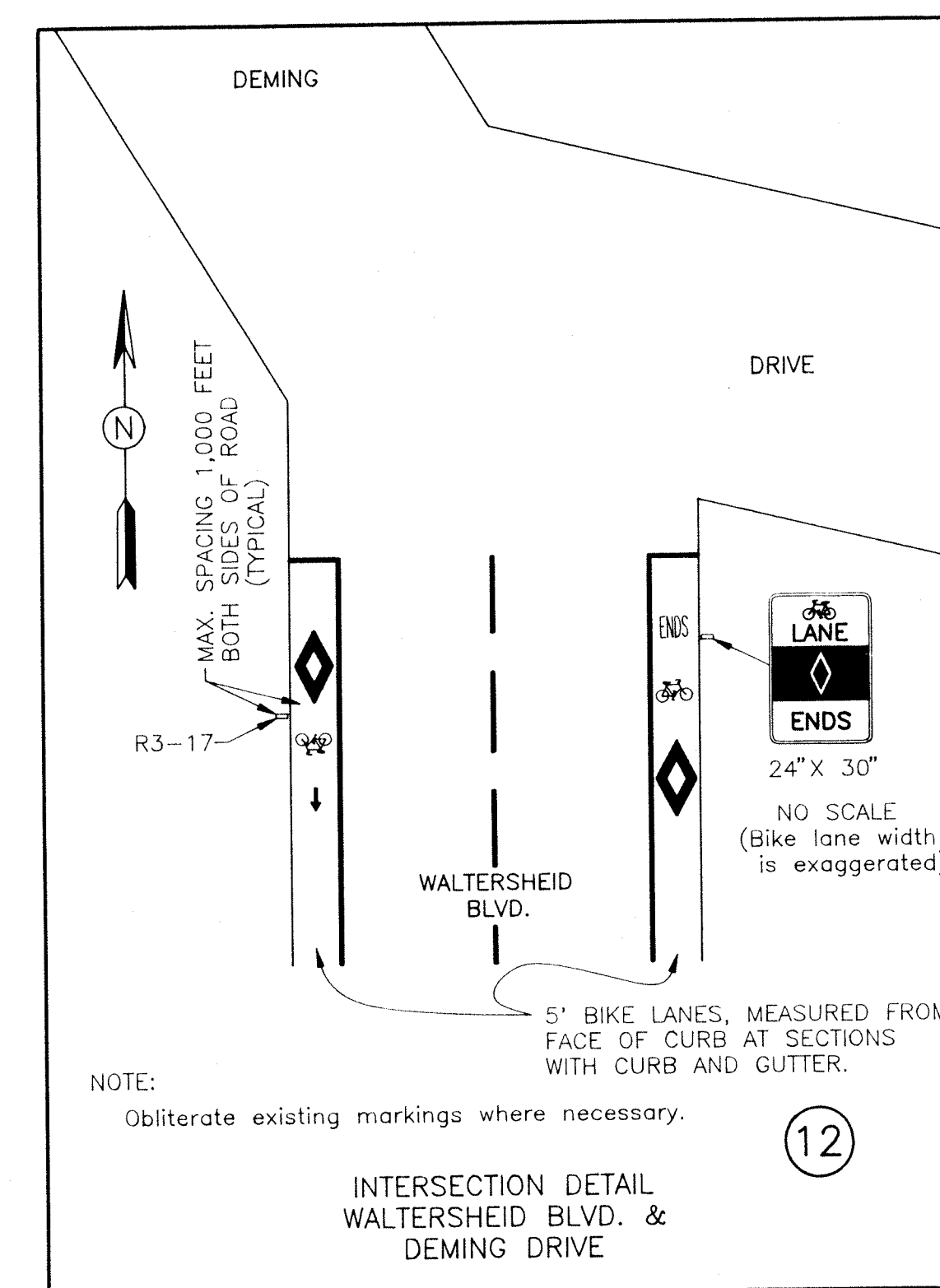
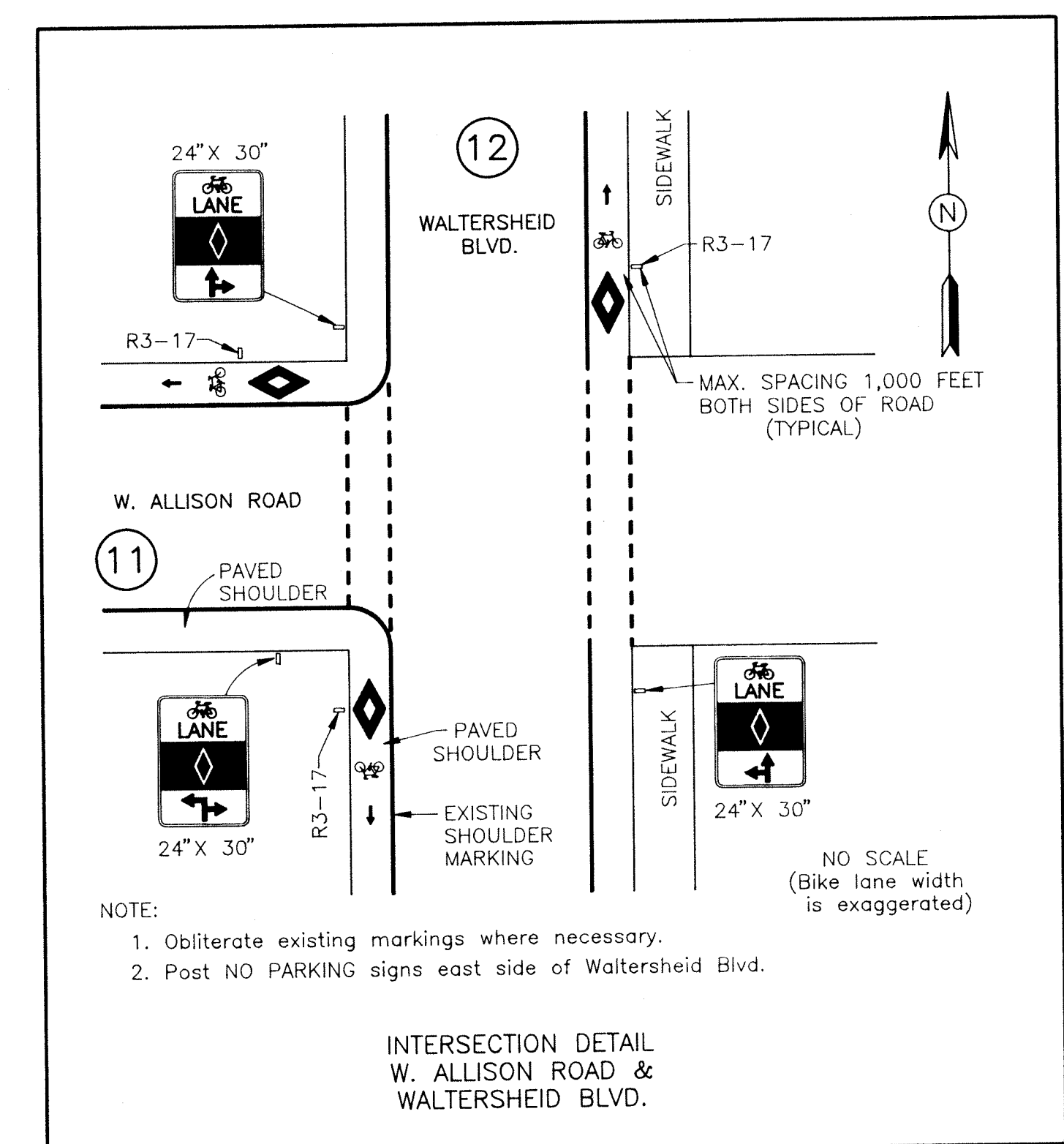
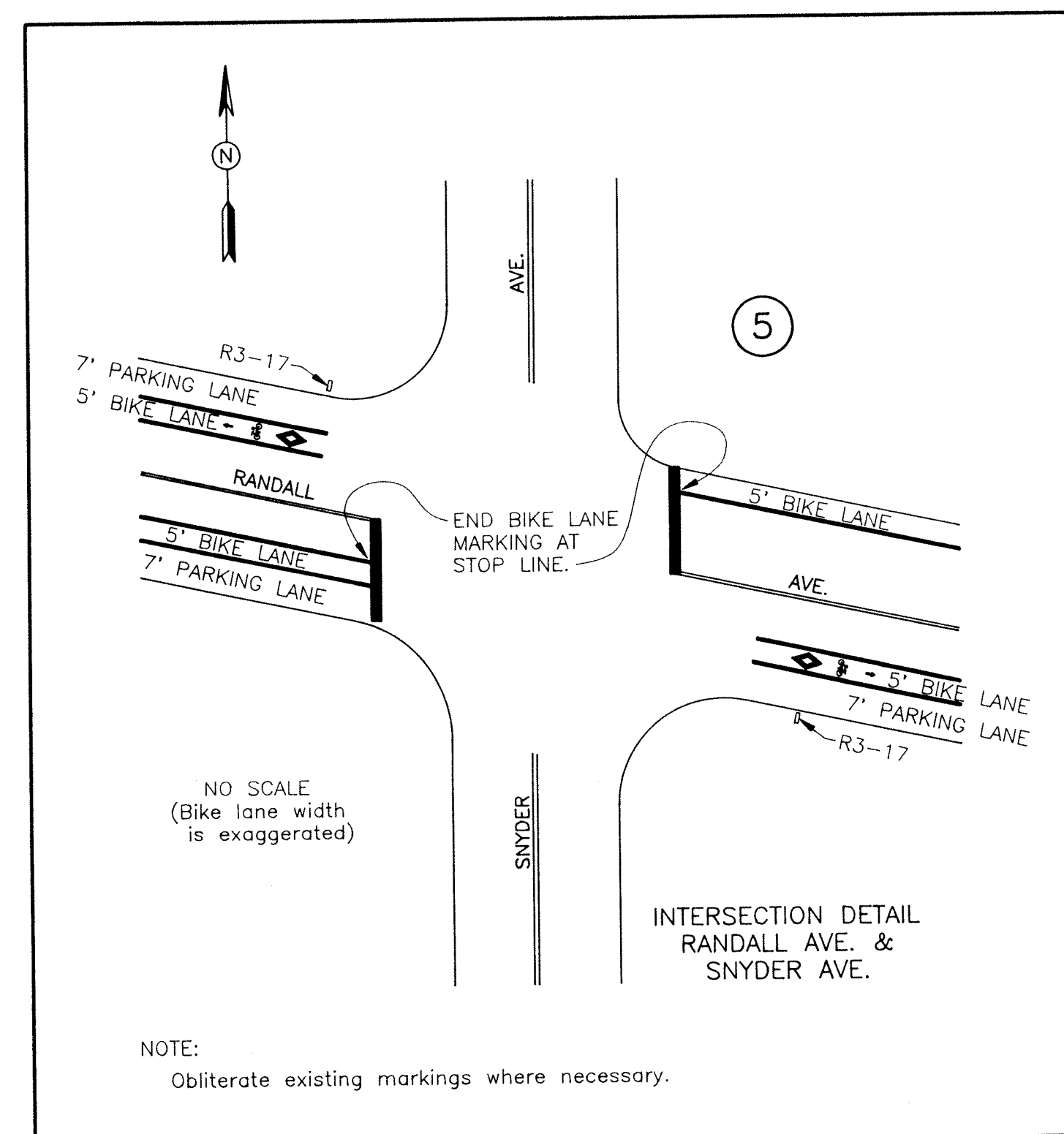
CHEYENNE AREA TRANSPORTATION PLANNING PROCESS	
ON-STREET PLAN (BIKE LANES)	
JACK NOBLITT & ASSOCIATES, P.C.	
ENGINEERS	PLANNERS
TRANSPORTATION	
1920 THOMES AVENUE SUITE 620	CHEYENNE, WYOMING 82001 (307) 634-9064
Design by: G.W.B.	File Name: BIKELN
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Checked by: J.L.N.	Date: 6/30/93
	Sheet No. 2 of 14



CHEYENNE AREA TRANSPORTATION PLANNING PROCESS	
ON-STREET PLAN (BIKE LANES)	
JACK NOBLITT & ASSOCIATES, P.C.	
ENGINEERS	PLANNERS
TRANSPORTATION	
1920 THOMES AVENUE SUITE 620	CHEYENNE, WYOMING 82001 (307) 634-9064
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CHEYENNE AREA TRANSPORTATION PLANNING PROCESS	
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JACK NOBLITT & ASSOCIATES, P.C.	
ENGINEERS	PLANNERS
TRANSPORTATION	
1920 THOMES AVENUE SUITE 620	CHEYENNE, WYOMING 82001 (307) 634-9064
Design by: G.W.B.	File Name: BIKELN
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CHEYENNE AREA TRANSPORTATION PLANNING PROCESS	
ON-STREET PLAN (BIKE LANES)	
JACK NOBLITT & ASSOCIATES, P.C.	
ENGINEERS	PLANNERS
TRANSPORTATION	
1920 THOMAS AVENUE CHEYENNE, WYOMING 82001 SUITE 620 (307) 634-9064	
Design by: G.W.B.	File Name: BIKELN
Drawn by: L. Lorentz	Project No: 9223.07
Checked by: J.L.N.	Date: 6/30/93
Sheet No. 5 of 14	

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