Date: November 9, 2018 Report No. 2018-164

INFORMAL STAFF REPORT
TO MAYOR AND CITY COUNCIL

SUBJECT:
Provide an overview of back-in parking on Hickory and recommendations for continued enforcement of back-in parking spaces.

BACKGROUND:
Staff has received several recent inquiries regarding the potential of either reconfiguring the back-in parking on Hickory Street or suspending back-in parking enforcement for designated spaces.

Back-in parking along Hickory Street was a part of the "Hickory Grand Street" capital project. The project spanned from the Downtown A-Train Station to Locust Street and included new pavement construction, sidewalk widening, implementation of Americans with Disabilities Act standards, landscaping, parking reconfiguration, pedestrian lighting, and power supply for future growth. The total project budget was $3,232,882. **Attachment 1** provides an overview of the funding sources used to complete the Hickory Grand Street project.

Project History
On Aug. 28, 2012, the City Council approved a professional services agreement with Michael Baker Jr. Inc., a local multi-discipline engineering firm for the design of the Hickory Grand Street project. Early drafts of the project design included back-in parking along Hickory Street as a way to accommodate motorists and enhance safety for pedestrians and bicyclists.

On Feb. 5, 2013, staff provided City Council with a project update that was specifically focused on parking options for Hickory Street. The Feb. 5 presentation (**Attachment 2**) explained the advantages of back-in parking over traditional head-in angled parking. Advantages listed include:

- Drivers can pull out directly into the travel lane rather than needing to back out into oncoming traffic;
- Drivers are better able to see oncoming traffic and bicyclists;
- Car doors open such that they block access to the street and guide pedestrians to the sidewalk, particularly safer for children;
- The trunk of the car is accessed from the sidewalk rather than the street for loading;
- Back-in parking better accommodates on-street handicapped parking; and
- While parking, drivers have an "eye-to-eye" line of sight with approaching road-users.

During the Feb. 5 presentation, staff also acknowledged that there are disadvantages of back-in parking including:

- Uncommonness and unfamiliar format for drivers;
- Confused drivers u-turning and pulling front-first into spaces from the opposite travel lane;
- Cars hanging over sidewalks and exhaust directly emitted onto sidewalks; and
- Difficulty in backing-up into a space if the car behind follows too closely.

At the conclusion of the Feb. 5 presentation, staff agreed to consult with the Traffic Safety Commission and Downtown Taskforce on the proposed project. Minutes from the Feb. 5 meeting (**Attachment 3**) reflect that the consensus of Council was to proceed with back-in parking.

On July 19, 2013, Michael Baker's consultant team held a public meeting to gain input from residents and business owners prior to completion of the Hickory Grand Street project design. Approximately 50 stakeholders attended the July 19 meeting, where general project concerns were raised, including comments about back-in parking. Staff provided a project update to the City Council at the Sept. 10, 2013 meeting that included an outline of stakeholder feedback provided at the July 19 public meeting and provided additional information on the benefits of back-in parking. These materials are included in **Attachment 4**.

On Nov. 18, 2014, the City Council unanimously passed Ordinance 2014-384 that, amongst other provisions, established back-in only parking requirements. The ordinance (**Attachment 5**) states, "it shall be an offense to park a vehicle in a parking space that is designated as a back-in parking space in any manner other than by backing into the parking space."

Enforcement

The back-in parking spaces on Hickory Street were designed to slow the movement of vehicles and enhance safety for pedestrians, bicyclists, and alternative modes of transportation. Chapter 18 section 18-91.54 of the City's Code of Ordinances requires drivers to properly use back-in parking spaces. Proper use of back-in parking is enforced throughout the day by parking officers and is monitored by patrol officers during the night and evening hours.

The table below shows the number of parking citations issued in the 100-400 blocks of E. Hickory Street from 2014 (prior to the opening of back-in parking spaces) and each year through 2018. From 2016 to 2017 there was a marked decrease in the number of citations issued, this is likely due to residents becoming more familiar with and accustomed to the use of back-in parking spaces.

Parking Citations	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
2014				12	3	8	28	6	1		1	1	**60**
2015	2		28	202	126	137	74	53	34	53	8	45	**762**
2016	60	148	130	136	50	164	128	131	88	82	71	50	**1,238**
2017	50	84	87	52	30	98	38	59	8	17	16	3	**542**
2018	11	6	33	63	26	16	27	29	1	2			**214**
TOTAL	**123**	**238**	**278**	**465**	**235**	**423**	**295**	**278**	**132**	**154**	**96**	**99**	**2,816**

RECOMMENDATION:

Staff recommends continued enforcement of back-in parking on Hickory Street. This recommendation is primarily due to safety concerns. When drivers improperly pull head-on into back-in spaces, they have to cross over a live lane of traffic which adds more complexity and increases the chances for other drivers, pedestrians, and cyclists to collide. The tables below depict traffic accident data and the types of accidents for 2014 (prior to the opening of back-in parking spaces) and each year through 2018 in the 100-400 blocks of E. Hickory Street. The number of accidents per year has leveled off since the implementation of back-in parking and there have only been two accidents that resulted in an injury since 2014.

TRAFFIC ACCIDENTS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
2014				1	1	0	0	0	1	0	0	0	**3**
2015	0	0	1	0	0	0	2	3	2	1	1	3	**13**
2016	2	0	0	1	0	0	0	1	2	2	0	0	**8**
2017		4		1	2		0	0	1	1	0	1	**10**
2018					2	1	0	3	1	1	0	0	**8**
TOTAL	**2**	**4**	**1**	**3**	**5**	**1**	**2**	**7**	**7**	**5**	**1**	**4**	**42**

TRAFFIC ACCIDENTS	2014	2015	2016	2017	2018	TOTAL
Hit & Run		6	4	3	2	**15**
Injury Crash				2		**2**
Minor Crash	3	6	4	5	5	**23**
Crash - Private Property		1			1	**2**
TOTAL	**3**	**13**	**8**	**10**	**8**	**42**

In addition to safety concerns, back-in parking was an integral component to Hickory Street's complete street design. The project required a significant capital investment and would have to be reconfigured if we want motorists to be able to safely head-in park along Hickory Street.

ATTACHMENTS:
Attachment 1 – Hickory Street Grand Project Funding
Attachment 2 – February 5, 2013 Work Session Materials
Attachment 3 – Minutes from February 5, 2013 Work Session
Attachment 4 – September 1, 2013 Work Session Materials
Attachment 5 – Ordinance 2018-384 (Back-In Parking)

STAFF CONTACT:
Rachel Wood
Chief of Staff
(940) 349-7718
Rachel.Wood@cityofdenton.com

CITY OF DENTON
HICKORY STREET GRAND PROJECT
Funding Sources and Expenditures

Source	Amount	Notes
Other Funding	587,172	Part of the proceeds of the sale of Facilities Management building from DCTA
Tree Fund	11,310	Tree Fund proceeds specifically for trees in this projects
G.O. Bonds	1,777,971	G.O. Bonds - As authorized by City Council Resolution R2010-037
G.O. Bonds	950,000	G.O. Bonds - As authorized by City Council Resolution R2012-027
General Fund	2,300	General Fund contributions
G.O. Bonds	(95,871)	G.O. Bonds - Project closed with excess repurposed to other street projects
Total Funding	**3,232,882**	

Vendor	Purchase Order	Amount		Description
Michael Baker Jr Inc	159410	332,628		Project design
Bowman Melton Associates Inc	164681	5,559		Planning & Zoning meetings
Jagoe Public Company	168519	2,750,399	**A**	Paving, drainage, electric, construction, tree-upsizing
W&M Environmental	168993	11,450		Ghost Tank Removal
Impress Graphics	168994	2,425		5 sets of plans
D&S Engineering	169082	4,431		Material testing
Floyd Smith Conrete Inc	177513	2,471		Remove concrete, wheel chair ramp
Stripe-a-zone Inc	177649	2,732		Pavement marking
Floyd Smith Conrete Inc	177685	4,279		Remove concrete, wheel chair ramp, signs and detours
Miscellaneous	N/A	116,508		City engineer labor and miscellanous items
Total Expenditures		**3,232,882**		

Jago Public Company Detail - PO 168519

Miscellaneous	275,160	Bonds, general conditions, signs, erosion, temp pavement, traffic control set up
Paving Improvements	1,246,007	
Drainage, Water, and Irrigation Improvements	468,640	
Electrical Improvements	90,159	
Hardscape Improvements	300,927	Concrete, pavers, etc…
Planting Improvements	228,102	
Manholes	36,472	
Signs and Dumpsters	104,932	
Total Jagoe PO 168519 Expenditures	2,750,399	**A**

AGENDA INFORMATION SHEET

AGENDA DATE: February 5, 2013

DEPARTMENT: City Manager-Administration

ACM: Howard Martin, 349-8232

SUBJECT

Receive a report, hold a discussion and provide direction on the Hickory Grand Street concept plan options related to head-in versus back-in parking.

BACKGROUND

City Council on August 28, 2012 approved an engineering services contract with Michael Baker (Baker) a local Denton multi-discipline engineering firm for the design of the Grand Street project. The Hickory Grand Street (Grand Street) project includes the stretch of Hickory Street from the Downtown A-Train Station to Locust Street (Exhibit 1). The Grand Street project includes new pavement construction, wider sidewalks, improved walkability, bringing the sidewalks up to ADA standards, ornate streetscape and landscape which will include street trees, landscaped corner beds and flower pots at various intersections, benches, trash cans, pedestrian lighting, and power supply accommodation for future growth and downtown festivals. An irrigation system will be installed for the landscape sustenance. The water, wastewater, and DME improvements will be completed before pavement construction begins for the Grand Street. The utility departments will fund their respective utility improvements. In addition the parking lot located across the Wells Fargo Bank is also being redesigned.

Baker has completed the conceptual design of the Grand Street, and the redesigned the layout of the parking lot across Wells Fargo Bank. These are included in the attached power point, Exhibit 2. The conceptual layout is based on the DTIP (Downtown Implementation Plan) report prepared by Jacobs, and then further embellished by a traffic operations study of the DTIP area by Freese & Nichols. The Hickory Grand Street cross-section from the Jacobs report is included in Exhibit 2 for reference. The concept plan includes options for Head-In and Back-In parking. Staff will make a presentation of the concept plan, the pros and cons of the two parking concepts, present a video of the Back-In parking in Austin, and seek input from the City Council.

PRIOR ACTION/REVIEW (Council, Boards, Commissions)

December 7, 2010: Council approved the contract with Freese & Nichols, Inc. for the Phase 2 of the DTIP Traffic Operations Study

August 28, 2012: Council approved the engineering and design services contract with Michael Baker Jr., Inc for the design of Hickory Grand Street.

EXHIBITS

1. Map
2. Power Point

Respectfully submitted:

P. S. Arora, P.E
DRC Engineering Administrator

EXHIBIT 1

Map – Exhibit 1

EXHIBIT 2

Hickory Grand Street

Concept Plan

&

Head-In Vs Back-In Parking

Existing Hickory Street & Parking

Existing Wells Fargo/Williams Square Parking Lot

Total Existing Parking Count

Wells Fargo Lot/Williams Square: 177 spaces

Hickory Street on-street parking: 57 spaces

Total Parking Spaces = 234 spaces

Parking Lot Design Development

Input from

- Planning
- Street Operations
- Traffic Engineer
- Downtown Liaison
- City Arborist
- Solid Waste
- DME
- Consultant

Proposed Wells Fargo/Williams Square Parking Lot

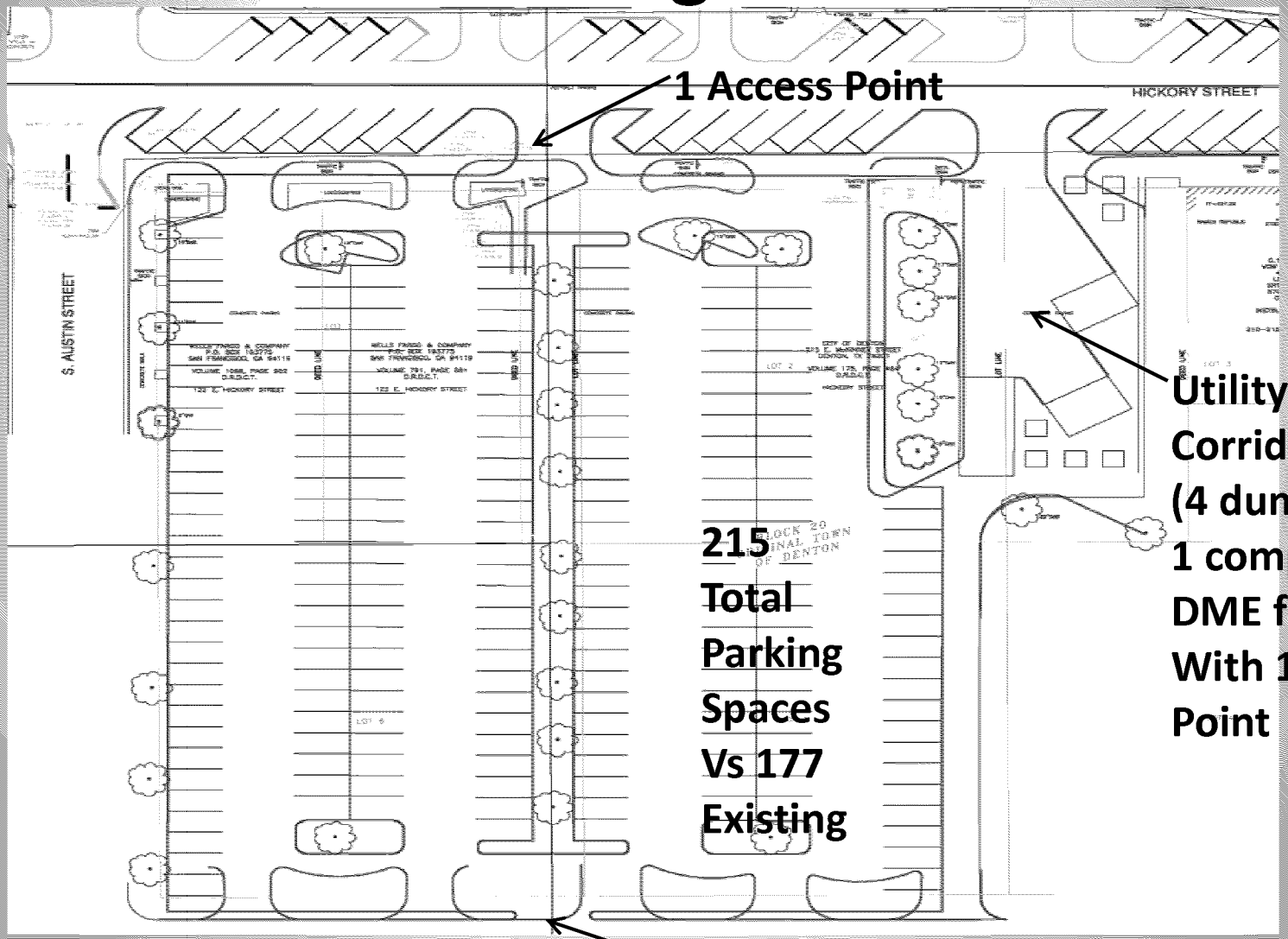
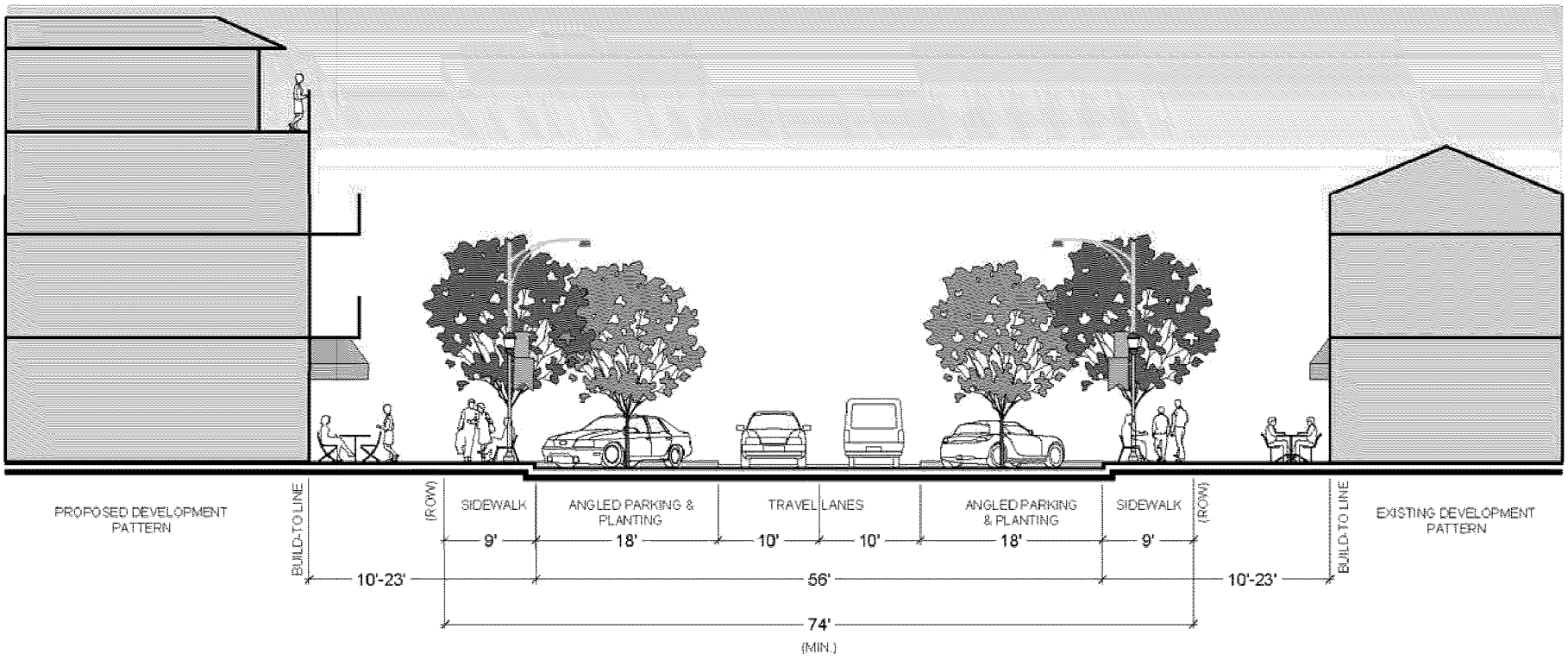
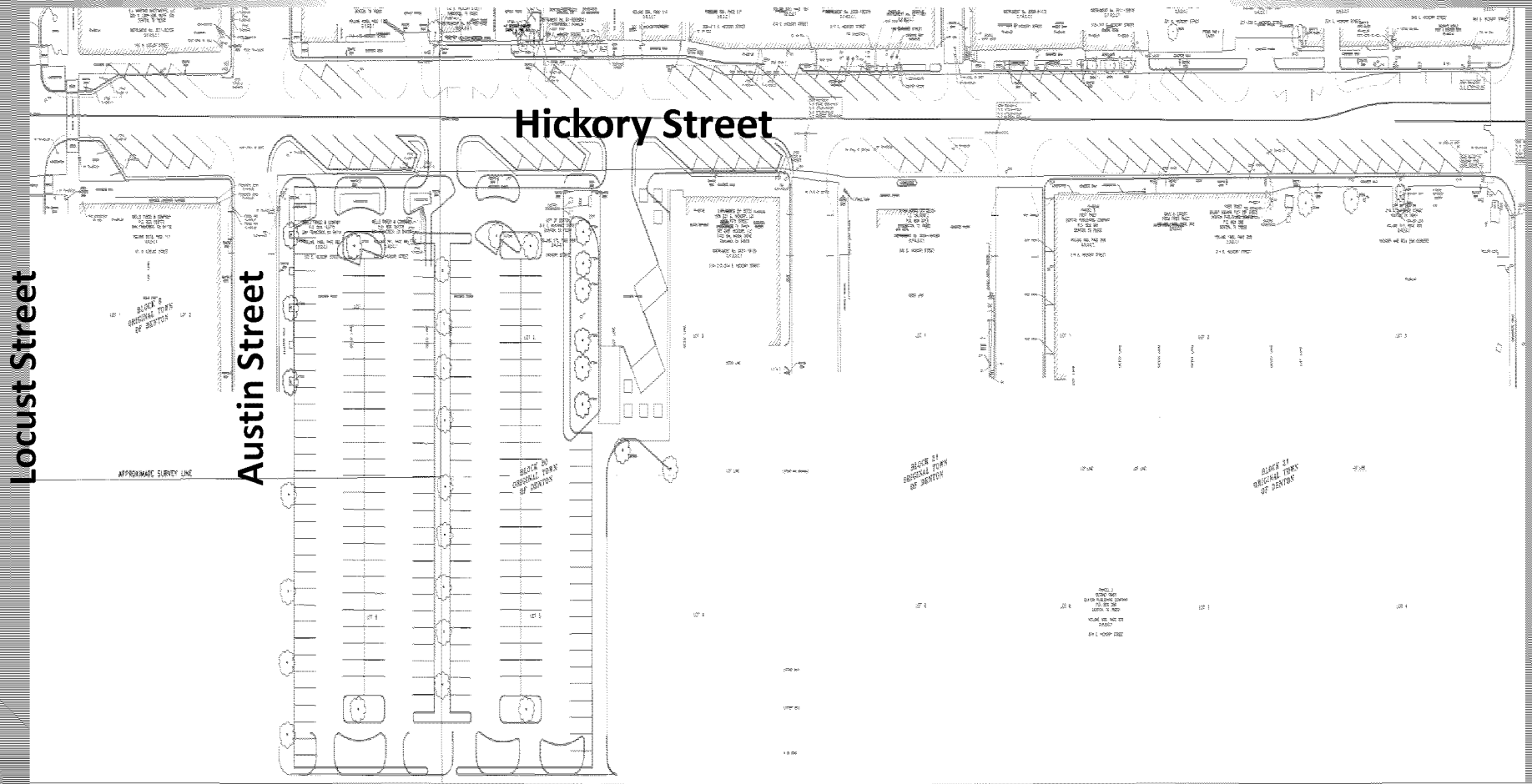


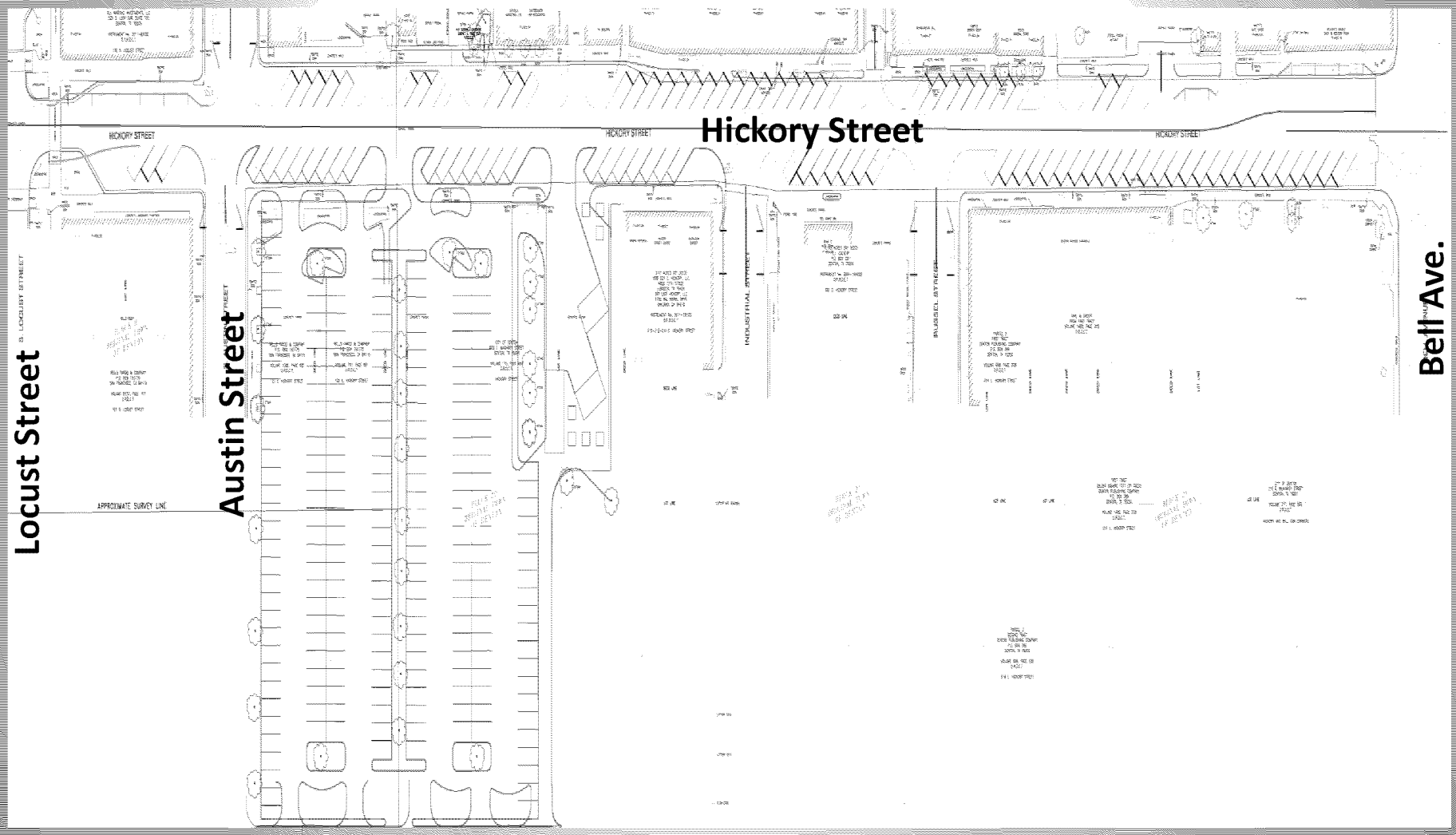
FIGURE 2
HICKORY STREET 2
AUSTIN TO INDUSTRIAL, INDUSTRIAL TO BELL



Head-in Angle Parking Layout



Back-in Angle Parking Layout



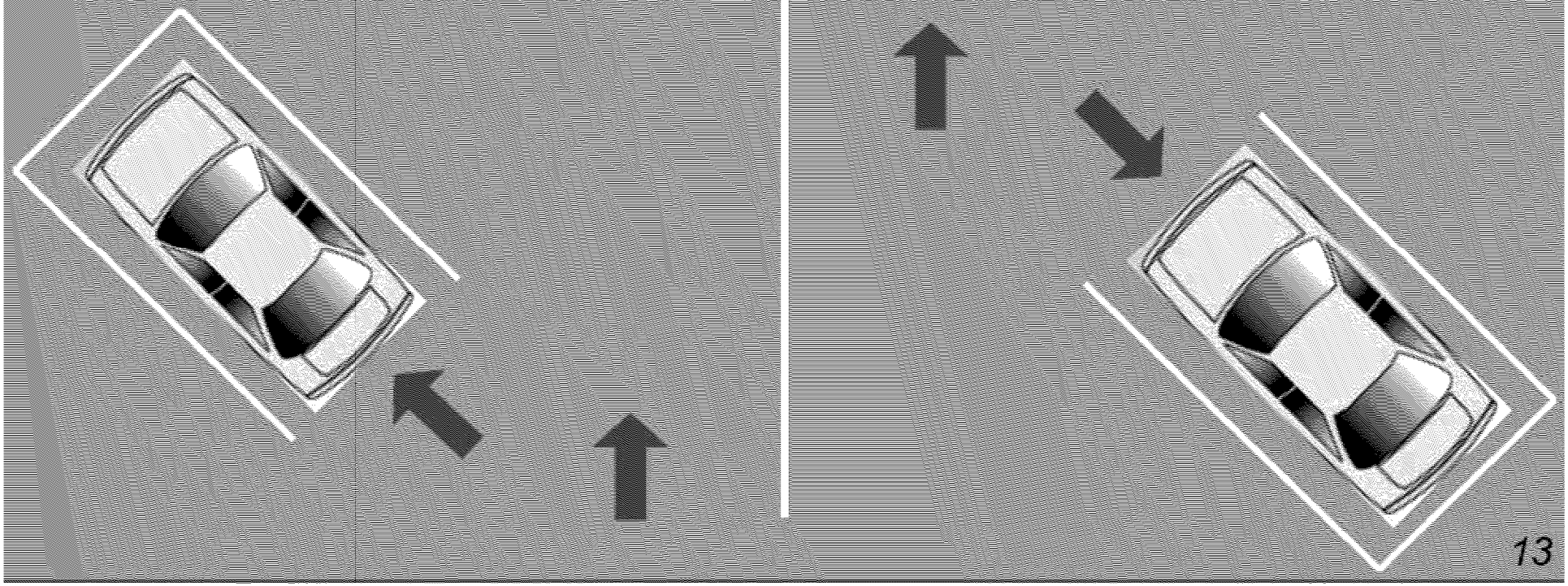
TYPES OF ON-STREET PARKING

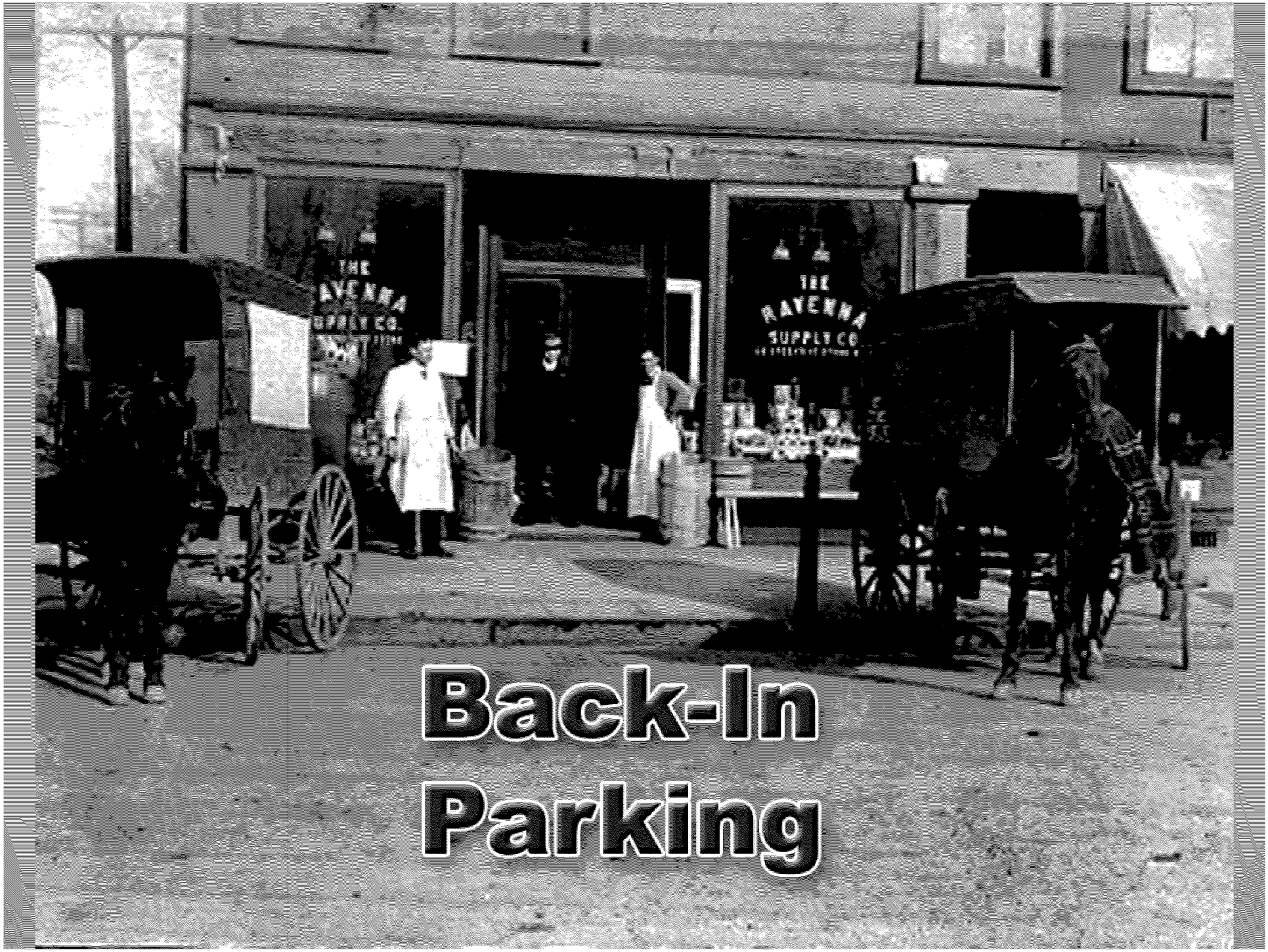
Angle Parking

- Angle parking includes parking at angles to the curb greater than 0 and up to 90 degrees

STANDARD / HEAD-IN ANGLE PARKING

REVERSE / BACK-IN ANGLE PARKING




Back-In
Parking


PRO

Seattle, Washington

Pottstown, Pennsylvania

Back-in/Head-out parking in Vancouver, WA

An ‘eye-to-eye’ line of sight between parker and approaching road-user (Vancouver, WA)

BACK-IN ANGLE PARKING

Better loading / wheel chair accessibility

Specific signage with instructions

Advantages of Back-In over Head-In

- Drivers are able to pull out directly into the travel lane, rather than needing to back out into oncoming traffic
- Drivers are better able to see oncoming traffic and bicyclists
- Car doors open such that they block access to the street and guide pedestrians to the sidewalk, particularly safer for children

Advantages of Back-In over Head-In

- The trunk of the car is accessed from the sidewalk rather than the street for loading cargo
- Back-in parking better accommodates on-street handicapped parking
- According to the Salt Lake City Transportation Division, “one of the most common causes of accidents is people backing out of standard angled parking without being able to see on-coming traffic. Reverse angled parking removes this difficulty.”

Advantages of Back-In over Head-In

- Tucson-Pima County reported that, on one stretch, they "went from an average of 3-4 bike/car accidents per month to no reported accidents for 4 years following implementation." This example is supported by several U.S. traffic studies

Disadvantages of Back-In Parking

- The uncommonness of this parking format and the resulting unfamiliarity of most drivers with it can be an issue
- Confused drivers U-turning and pulling front-first into the spaces from the opposite travel lane
- Potential downfall include cars hanging over and exhaust fouling the sidewalk, a particular concern where there is outdoor seating. Anti idling laws
- Difficulty in backing up into a space if the car behind follows too closely and blocks the path into the space

Total Proposed Parking Count with Head-In Angle Parking

Wells Fargo Lot/Williams Square: 215 spaces

Hickory Street on-street parking: 72 spaces

Total Parking Spaces = 287 spaces

Compared to 234 existing

Total Proposed Parking Count with Back-In Angle Parking

Wells Fargo Lot/Williams Square: 215 spaces

Hickory Street on-street parking: 105 spaces

Total Parking Spaces = 320 spaces

Compared to 234 existing, and 287 with Head-in parking option

Parking Count with Angle & Parallel Parking

- Back-In + Parallel Parking = 305 spaces
- Head-In + Parallel Parking = 284 spaces
- Parallel Parking only = 281 spaces

City of Austin Back-In Parking Video Clip

Direction From Council

- Head-In Parking (287 spaces), OR
- Back-In Parking (320 spaces), OR
- Combination of Head-In & Parallel (284 spaces), OR
- Combination of Back-In & Parallel (305 spaces) OR
- Parallel only 281 spaces OR
- Get feedback from other boards, commissions

Leal stated that another necessity was to have the conservation easement in place so that it could not be developed.

Council Member Gregory stated that he did not see how canopy fit into inches or acres. Canopy was important but not more than inches or acres. He requested information on how canopy interacted with inches and acres.

Kralik continued with the suggested formation of a Citizens Tree Fund Committee. She indicated that once the contractor had started developing the tree trust process, staff would come back to Council for recommendations on the committee. Dallas was only other city using citizen engagement for the process of urban forest planning.

Kralik stated that the consultant could cost between $15-25,000 and asked where the funding would come from.

Mayor Burroughs stated that he was not in favor of depleting the tree fund to pay for the consultant.

Mayor Pro Tem Kamp stated that as this was a one-time expense she would suggest using the City Manager's contingency fund.

City Manager Campbell stated that staff would come back to Council with a recommendation on how to fund the consultant without using the tree fund.

4. Receive a report, hold a discussion and provide direction on the Hickory Grand Street concept plan options related to head-in versus back-in parking.

PS Arora, DRC Engineering Administrator, reviewed the existing Wells Fargo/Williams Trade Square parking lot. Currently the lot had five access points on Hickory and Mulberry with a total existing parking court of 177 parking spaces. Hickory Street had 57 on-street parking spaces which resulted in a total of 234 parking spaces in the area.

Input was received from the following departments for a proposed parking lot design development: Planning, Street Operations, Traffic Engineering, Downtown Liaison, City Arborist, Solid Waste, DME and the consultant.

The proposed parking lot would have only one access point on Hickory and one on Mulberry which would increase the parking spaces to 215 from 177. Staff would have to work with Solid Waste on where to place dumpsters, the compactor and DME facilities.

Council Member Roden stated that there were a lot of pedestrians in the area and he did not see a place to cross Hickory Street in the plans.

Arora stated that there would be build outs that would provide safe areas to cross. He stated that back-in parking was a good safety feature and provided better loading/wheel chair accessibility. Specific signage with instructions could be provided for drivers unfamiliar with back-in parking.

Advantages of back-in over head-in parking included: (1) drivers were able to pull out directly into the travel lane, rather than needing to back out into incoming traffic; (2) drivers were better able to see oncoming traffic and bicyclists, (3) car doors opened such that they blocked access to the street and guided pedestrians to the sidewalk which was particularly safer for children, (4) the trunk of the car was accessed from the sidewalk rather than the street for loading cargo, and (5) better accommodated on-street handicapped parking.

Disadvantages of back-in parking included (1) uncommonness and unfamiliar format to drivers, (2) confused drivers u-turning and pulling front-first into spaces from the opposite travel lane, (3) cars hanging over and exhaust fouling the sidewalk particularly where there was outdoor seating, and (4) difficulty in backing up into a space if the car behind followed too closely and blocked the path into the space.

The total proposed parking court with head in parking included 287 spaces compared to the existing 234 spaces. Back-in angle parking would produce 320 total spaces compared to 234 existing and 287 with head-in parking.

Staff was requesting direction from Council on the type of parking for the area and whether feedback was needed from other boards and commissions.

Mayor Burroughs asked if the Traffic Safety Commission and the Downtown Task Force would be good committees for feedback.

Arora stated that those two boards could be consulted but cautioned that it would slow down the process.

Council Member Gregory felt that back-in parking was a good idea and suggested that it might also be a good idea for Industrial Street. He had seen this work in other cities.

Mayor Burroughs stated that if it didn't impact the time line, he would suggest taking the proposal to the other boards but because it would impact the time line, it was a different scenario. He felt the proposal was safer and did not have a problem with it.

Consensus of the Council was to proceed with the back-in parking.

Following the completion of the Work Session the Council convened in a Closed Session to consider the following:

1. Closed Meeting:

    A. Deliberations regarding Real Property - Under Texas Government Code Section 551.072; Consultation with Attorneys - Under Texas Government Code Section 551.071.

        1. Discuss, deliberate, and receive information from staff and provide staff with direction pertaining to the potential purchase of certain real property interests located in the T. Toby Survey, Abstract No. 1288, City of

AGENDA INFORMATION SHEET

AGENDA DATE: September 10, 2013

DEPARTMENT: Utility Administration

ACM: Howard Martin

SUBJECT

Receive a report, hold a discussion and provide direction on the Hickory Grand Street project progress.

BACKGROUND

The Hickory Grand Street (Grand Street) project includes the stretch of Hickory Street from the Downtown A-Train Station to Locust Street (Exhibit 1). The Grand Street project is to include new pavement construction, wider sidewalks, bring the sidewalks up to ADA standards, have ornate streetscape and landscape which will include street trees, landscaped corner beds and flower pots at various intersections, benches, trash cans, pedestrian lighting, and power supply accommodation for future growth. An irrigation system is to be installed for the landscape sustenance. The water, wastewater, and DME improvements will be completed before pavement construction begins for the Grand Street. The utility departments will fund their respective utility improvements. In addition the parking lot located across the Wells Fargo Bank is being redesigned including accommodations for centralized solid waste facilities.

Staff had engaged Michael Baker (Baker) a local Denton multi-discipline engineering firm for the design of the Grand Street project. Baker brought the Dallas based Landscape design firm of Caye Cook & Associates (CCA) in the design team. CCA has designed several transit oriented projects in the DFW Metroplex and specialize in streetscape pedestrian paving, planting and amenities design, roadway landscape planning and design.

The consultant team is nearing completion of the design project. To get input from the stakeholders on the design elements before the 100 percent design completion, a progress presentation of the project was made to the merchants and residents in the Grand Street corridor on Friday, July 19. Notice was e-mailed to 275 stakeholders in the corridor. The meeting was well attended. About 50 stakeholders in addition to city staff attended the presentation meeting in the City Council Chamber. Including the presentation the meeting went on for about two hours. There was good discussion and staff and the consultant received good input to improve the final design. Input received in the meeting is attached as Exhibit 2. In addition Council Member Roden who attended the progress presentation provided his input as included in Exhibit 3. There was concern raised about back-in parking on steep slope. Exhibit 4 provides information obtained for back-in parking from other cities around the country to address this concern. Staff also presented the project progress information to the Downtown Task Force on August 8. The input received from the members and residents was also presented to the task force. A listing of these concerns and input received is summarized below;

- A place to put signage and/or ongoing notices of phasing during construction.
- Any provisions for bicycle and motorcycle parking areas
- Is there an opportunity to use powder coated light poles versus rock covered poles
- There is concern regarding back-in angled parking on steep slopes
- Are there any provisions for DME to install electric vehicle charging stations?
- The existing church located along Mulberry Street would like two access points into the Wells Fargo/Williams Square parking area.
- The merchants would like to see the Wells Fargo and Williams Square parking areas constructed in Phase 1 prior to street construction because of loss of on-street parking during construction.
- There is concern on where inventory and beverage vehicles will park during construction and upon project completion.
- There is question on where crosswalks are to be located along Hickory Street.
- There is concern for lack of sidewalk within the railroad ROW.
- How will this project affect Day of the Dead festival (October 26th)?
- There is concern regarding pedestrian access to businesses during construction.
- There is comment about no parking provided along Weldon's Western Wear near Bell/Hickory Street.
- What is status of DME, Verizon and Atmos coordination
- Are there any provisions to enable lighting of street trees like the Downtown Square?
- Get all this online
- Develop a clear plan for how pedestrian access to businesses remains during construction phase
- Dumpster location in Williams Square
- Verizon Connectivity
- Bicycle Parking
- Width of Sidewalks
- Where to cross Hickory where it is legal and safe

Staff will discuss the above comments/concerns along with the project status in the Council Work Session presentation and seek any further direction before bidding the project.

PRIOR ACTION/REVIEW (Council, Boards, Commissions)

August 28, 2012: City Council approved the professional services agreement with Michael Baker Jr., Inc for design of Hickory Grand Street

EXHIBITS

1. Map
2. Merchant/Neighbor meeting comments/input
3. Council member Roden comments/input
4. Back-In Parking additional information
5. Hickory Grand Street Presentation

Respectfully submitted,

P. S. PSAdams .

DRC Engineering Administrator

EXHIBIT 1


Hickory Grand Street Project
HICKORY
LOCUST
INDUSTRIAL
MULBERRY
RAILROAD
DCTA
STATION

EXHIBIT 2

Merchant/Neighbor Meeting Input/Comments from July 19 Meeting

- A place to put signage and/or ongoing notices of phasing during construction.
- Any provisions for bicycle and motorcycle parking areas
- Is there an opportunity to use powder coated light poles versus rock covered poles
- There is concern regarding back-in angled parking on steep slopes
- Are there any provisions for DME to install electric vehicle charging stations?
- The existing church located along Mulberry Street would like two access points into the Wells Fargo/Williams Square parking area.
- The merchants would like to see the Wells Fargo and Williams Square parking areas constructed in Phase 1 prior to street construction because of loss of on-street parking during construction.
- There is concern on where inventory and beverage vehicles will park during construction and upon project completion.
- There is question on where crosswalks are to be located along Hickory Street.
- There is concern for lack of sidewalk within the railroad ROW.
- How will this project affect Day of the Dead festival (October 26th)?
- There is concern regarding pedestrian access to businesses during construction.
- There is comment about no parking provided along Weldon's Western Wear near Bell/Hickory Street.
- What is status of DME, Verizon and Atmos coordination
- Are there any provisions to enable lighting of street trees like the Downtown Square?

EXHIBIT 3

Council member Roden Input/Comments from July 19 Meeting

- GET ALL THIS ONLINE - make a dedicated page and start with a PDF of Friday's presentation and a PDF of the entire site plan. This can be where timelines, updates, progress, etc. are posted - that will make it easy for the downtown and city's social media sites to reference throughout the project

- DEVELOP A CLEAR PLAN FOR HOW PEDESTRIAN ACCESS TO BUSINESSES REMAINS DURING CONSTRUCTION PHASE - most of the discussion was on how traffic flow continues and talk of sidewalk accommodations and access to businesses was glossed over a bit. I've already received comments and concerns about this from business owners. Having a clear prescribed plan on how this works with early communication with the businesses should be a priority. This is something that should also be on the website.

- DUMPSTER LOCATION IN WILLIAMS SQUARE - while the move from the side of Rusty's and the side of the condos is a good and welcome change, putting dumpsters just parallel to the sidewalk seems a bit contrary to walkable goals for this corridor. In my minds, that goal trumps the ease of pick-up and the walking distance of restaurant workers accessing the dumpsters. If, at the end of the day, this is the best spot, it's proximity to the sidewalk could be mitigated if the surrounding gate could be used for public art/mural, etc.

- VERIZON CONNECTIVITY - I would encourage us to get aggressive about this before we dig up the street and pursue our options. There's already evidence that lack of adequate fiber is stifling higher end businesses from setting up near this corridor - in 5 years, it will be akin to lacking basic electricity.

- BICYCLE PARKING - mention was made that a plan was being looked into with another department on this, but no coordination with these redesign plans? It seems the time to identify spots for bicycle parking in various points along this street is now and build into design.

- WIDTH OF SIDEWALKS? At one point, I thought one of the goals was to encourage more outdoor patio spots for restaurants, bars, and cafes and that this project would create sufficient sidewalk width to accommodate this. The design plans don't seem to reflect this - but I may be wrong. So much emphasis in every presentation is about preserving and increasing parking. I'm convinced that in 10 years, we will have realized that was the wrong perspective. A corridor filled with a wide sidewalks and non-stop attractive front patios will be a place conducive for pedestrians and will be a draw - people will figure out how to get there.

- WHERE TO CROSS HICKORY WHERE IT IS LEGAL AND SAFE? I'd like to see this clarified a bit more. I don't think people will walk from the parking lot up to Austin or a locust or down to Industrial or Bell to cross. We need to identify additional cross spots, mark them, and figure out how to make them safe and legal.

EXHIBIT 4

Back In Angled Parking for Hickory Street

Overview

Back in angled parking is identified as a method of decreasing conflict between parked vehicles and cyclists, and has been used on a variety of applications in downtown areas with grades ranging from flat to steeply graded. Its use on Hickory Street in downtown Denton, Texas, follows precedent for bicycle friendly design and use of back in angled parking on grades.

Benefits to Cyclists

The location of parked vehicles in a back-in angled parking layout versus a front-in angled parking layout grants drivers a clearer view of the traffic passing them in both directions, including motor vehicles, bicycles and pedestrians. By pulling forward out of the space, the drivers' view is not blocked by adjacent cars during the majority of the pull out maneuver. Back-in angled parking is a part of current design for cyclist-friendly facilities in such areas as San Francisco, California, Austin, Texas and Seattle, Washington (*Bialick 2012; Walking 2013*) as well as smaller communities such as Burlington, Vermont and Pottstown, Pennsylvania (*Losch, 2012; Nawn 2003*).

The city of Tuscon, Arizona installed back-in parking in a downtown application with significant bicycle traffic. Prior to the installation of back-in parking, there were an average of three to four cyclist/vehicle crashes per month, and for four years following back-in parking installation, no cyclist/vehicle crashes were reported in the project area (*Walking, 2013*).

Back In Angled Parking on Grade

A number of cities that use back-in angled parking as part of their design criteria do have flatter grades, and there are some concerns about the use of back-in angled parking on steeper grades (*Walking, 2013*). In practice, many cities with significant grades, including San Francisco, California, Seattle, Washington, and Burlington, Vermont utilize back-in angled parking with no reports of difficulties or increased incidents due to parking on grade. The investigations into back-in angled parking in Burlington revealed that back-in angled parking reduces the threat of "runaway" vehicles as the parking maneuver automatically "curbs" the wheels of a vehicle (*Losch, 2012*).

Seattle, Washington incorporates back-in angled parking in a significant part of their Central Business District (CBD). Much of the CBD is on a significant grade. Visual inspection of publically available overhead photography shows back-in angled parking with uphill travel on streets such as Virginia Street, Marion Street and Blanchard Street. These roads, by evaluation using publically available elevation information, range from 9 to 17% grades. Other Seattle locations with back-in angled parking on downhill travel streets include Bell Street with a 9% grades (*Google, 2013*).

Austin, Texas has installed back-in angled parking on a length of South Congress Street, south of the CBD. The back-in angled parking is located on both sides of the street. Publically available elevation information shows the grades along this stretch range from 2 to 4% (*Google, 2013*).

Back In Angled Parking on Hickory Street

The Hickory Street project will include back-in angled parking in order to increase cyclist and pedestrian safety, as well as to compliment to the expansion of attractive, walkable sidewalks on the street. The maximum grade on Hickory Street is approximately 5.6% between Locust and Austin streets, decreasing to a flat grade (<1% slope) by Industrial Street, incorporating a total of 28 downhill and 24 uphill parking spaces on grade. These grades should present no problems for drivers, and the increased visibility should lessen, near the point of no occurrence, cyclist/vehicle crashes on Hickory Street. This will help to create a distinctive environment on Hickory Street and make the development of this street a showpiece for the entire downtown Denton area.

References

Bialick, A. (2012). SFMTA Drafting Design Standards to Streamline Innovative Bike Treatments. *SF.Streetsblog.org*. Retrieved from http://sf.streetsblog.org/2012/05/11/sfmta-drafting-design-standards-to-streamline-innovative-bike-treatments/

Google Earth data, Seattle, WA. Retrieved July 21, 2013.

Google Earth data, Austin, TX. Retrieved July 21, 2013.

Losch, N. (2012). *Reverse Angle Parking* [Brochure]. Retrieved from: http://www.dpw.ci.burlington.vt.us/docs/brochure_v2.pdf

Nawn, J. A. (2003). *Back In Angled Parking in the Central Business District.* Retrieved from: http://www.aocweb.org/AOC/LinkClick.aspx?fileticket=JbxNb8MKZWU%3D&tabid=323

Walkinginfo.org. (2013). *Back In Angle Parking: What Is It, and When and Where Is It Most Effective?* Retrieved from: http://www.walkinginfo.org/faqs/answer.cfm?id=3974

ORDINANCE NO. 2014-384

AN ORDINANCE OF THE CITY OF DENTON, TEXAS, AMENDING THE PROVISIONS OF CHAPTER 18 RELATING TO MOTOR VEHICLES AND TRAFFIC BY REPEALING SECTION II OF ORDINANCE NO. 93-109 WHICH PROVIDES FOR DIFFERENT DEFINITIONS OF "COMPACT CAR" AND "COMPACT VEHICLE" THAN THE DEFINITION ADOPTED BY THIS ORDINANCE; BY AMENDING SECTION 18-1 "DEFINITIONS" TO ADD A DEFINITION FOR "COMPACT MOTOR VEHICLE"; BY ADDING SECTION 18-91.52 ESTABLISHING ADDITIONAL PARKING REGULATIONS REGARDING PARKING IN SPACES DESIGNATED FOR COMPACT VEHICLES ONLY; BY ADDING SECTION 18.91.53 REQUIRING THAT ALL VEHICLES PARK WITHIN DESIGNATED PARKING SPACES; BY ADDING SECTION 18-91.54 ESTABLISHING BACK-IN ONLY PARKING SPACES; PROVIDING A SAVINGS CLAUSE; PROVIDING FOR A PENALTY NOT TO EXCEED $500 FOR VIOLATIONS OF THIS ORDINANCE; AND PROVIDING FOR AN EFFECTIVE DATE.

THE COUNCIL OF THE CITY OF DENTON HEREBY ORDAINS:

SECTION 1. Section II of Ordinance No. 93-109 is hereby repealed.

SECTION 2. Chapter 18 of the Code of Ordinances of the City ("Motor Vehicles and Traffic") be and the same is hereby amended by adding a definition for "compact motor vehicle" to Section 18-91 "Definitions." The definition of "compact motor vehicle" in Section 18-91 shall read as follows:

Sec. 18-91. Definitions.

Compact vehicle means a motor vehicle that is 180 inches or less in length and with a wheel base that is 105 inches or less.

SECTION 3. Chapter 18 of the Code of Ordinances of the City ("Motor Vehicles and Traffic") be and the same is hereby amended by adding Section 18-91.52 "Compact Vehicles Only in Designated Parking Areas." Section 18-91.52 shall read as follows:

Sec. 18-91.52. Compact motor vehicle-only parking spaces.

When sign(s) or marking(s) are installed giving notice thereof, it shall be an offense to park a vehicle that is not a compact motor vehicle in a parking space marked for only compact motor vehicles or to park any motor vehicle in a manner that does not fit completely within the innermost edge of all the applicable marking(s) designating the parking space.