



## MEMORANDUM

**TO:** Mayor and Council

**FROM:** Robert Goode, P.E., Assistant City Manager  
Sue Edwards, Assistant City Manager *RG*

**CC:** Marc A. Ott, City Manager  
Rob Spillar, P.E., Austin Transportation Department  
Rodney Gonzales, Development Services  
Greg Guernsey, Planning and Zoning

**DATE:** September 13, 2016

**SUBJECT:** The Grove staff review

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As you know, development of the Grove has become a controversial issue with organizations, constituents, and Council members weighing in on both the "pro" and "con" side. Several Council members have questioned the staff's review process. To respond to these concerns, the City Manager asked us to explore the staff's technical analysis regarding the traffic impact and the analysis of the review process. We have worked with our teams to evaluate and clarify the staff's role in the review, the current status of the review, and the development's potential impact and required mitigation. We've attached two memos that go into much greater detail and we've tried to also summarize the analysis below. We apologize for the length of the attached memos, but we wanted to try to answer all the outstanding questions we have received thus far.

There are many issues/concerns to be addressed, but the two primary issues seem to be the accuracy of the Traffic Impact Analysis (TIA) and the review process itself in regards to the roles of management vs. front line reviewers. We've tried to address both of these issues via the attached memos. We're going to address the staff roles first.

### Management's Role in the Review Process

As you know, staff serve different roles in our employee family. As is the case in any organization, the staff are hired to provide their experience and education in the tasks that they perform every day. We expect every City employee to exhibit our P.R.I.D.E values in every interaction. Building from that standard, we also expect different things from our employees depending on the responsibilities of their particular positions in the organization. For example, in this case, as the City Manager heard Council members, the media, and community groups express concern about the review process, he sought out the assistance from senior level staff...two of his Assistant City Managers...to review these concerns. This is a highly controversial case, so he directed his ACM's to engage. The more controversial and/or complex the issue becomes, the more we expect senior level managers to engage.

Every employee in our organization is vital to our success. As such, it is necessary for our employees to have different roles and tasks in order to reach that success. For example, many of our employees are tasked to provide research, collect data, analyze issues and then act upon that information to make decisions and move on. In many cases, those same employees are asked to

provide that information to a supervisor, manager, Department Head, Assistant City Manager, or to the City Manager to make the final decision.

In the case of a controversial, complex development project we absolutely expect and demand that Department Heads be personally involved. We expect them to use all resources available within their departments to seek input and advice, but at the end of the day the Department Heads are accountable for products that come out of their department. This is the case for any high level issue/project in our organization. For example, as Council members you are faced with controversial policy decisions. We're sure that you seek advice/input from your staff, but at the end of the day...taking into account that input...the final decision rests with you.

So, one of the questions that seems to continue to be asked is why did "management" get involved in the review process instead of just letting the front line engineers/reviewers have the final say. For a case as complicated and controversial as the Grove, we find it hard to understand why anyone would think that we wouldn't require our Department Heads to be involved in the process. Yes, Department Heads should, and did, seek input, data, and advice from their staff. But, as stated above, "at the end of the day the Department Heads are accountable for products that come out of their department." In the case of a controversial development project, the Department Heads must take into account their staff's comments and opinions, the developer's supplied data, the code requirements, engineering standards, the process we are in at the moment, and the process that will follow. As to the "process we are in at the moment", it is important to remember that we are currently reviewing a Planned Unit Development (PUD) zoning case, not a site plan application. As you know, during the change of zoning application it is appropriate to only review conceptual designs of the proposed development and traffic mitigation measures. The conceptual designs are utilized as the basis for future construction documents to implement the traffic mitigation measures. The construction documents are reviewed for approval through the City's Site Development Permit process. This difference has been the source confusion regarding front line staff's comments and "management" determining that some of those comments were not appropriate at the zoning phase and would be more appropriately addressed at site plan.

Hopefully the information described thus far has answered the "staff's role" question. In short, the Department Heads absolutely needed to be involved in this complicated, controversial case. After taking into account input from their staffs, it was their decision to make regarding compliance of the development with city codes, engineering standards, etc.

#### **Technical Analysis on the Traffic Impact Analysis**

In the case of Mr. Spillar, acting in his capacity as the City's Traffic Engineer, he is the authority that makes decisions regarding traffic impacts. He certainly has employees that take on technical review tasks, but they are doing so under the supervision of the office of the City Traffic Engineer. Since there have been concerns expressed and allegations offered regarding the Traffic Impact Analysis (TIA), ACM Goode asked Mr. Spillar to attempt to clarify his stance as the City's Traffic Engineer regarding the TIA. In his attached response you can see that Mr. Spillar has taken the step to seal this document as a Professional Engineer. This is an unusual step, but in this controversial case, with so many allegations regarding the accuracy of the TIA, we believe that this action reiterates the professional weight of his conclusions as the City's Traffic Engineer.

In closing, we hope this information helps clarify and address some of the stated concerns. We stand ready to answer further questions as this project moves forward for your consideration.

**Attachments:** Technical Analysis Report from Director Spillar; Process Memo for Director Spillar and Gonzales.



## MEMORANDUM

**TO:** Assistant City Manager Robert Goode

**FROM:** Robert Spillar, P.E.  
Austin Transportation Department Director  
City Transportation Engineer

**DATE:** September 12, 2016

**SUBJECT:** Proposed Grove Development  
Technical Analysis Report On Traffic Review Process



The purpose of this memorandum is to provide a technical analysis report of the Traffic Review Process performed under the supervision of the office of City Traffic Engineer and respond to specific questions asked of the analysis.

### Development Phasing:

The Grove is a unique development in that it was previously owned by the State of Texas and therefore had no City of Austin zoning prior to its sale. The developer has proposed Planned Unit Development (PUD) zoning so that they can have greater assurances as to their final investment. Once zoning is established, PUD or otherwise, the development will then move to the site development stage. Staff review of the mobility attributes occurs at both stages of development, zoning and site development. **At the zoning stage of development, it is incumbent on the developer to show plausible concepts to mitigate the estimated transportation impacts caused by the development. They are required to provide a proof of concept for mitigation. Perfection of those mitigation concepts occurs during final design.** At the site development stage, design-tested mitigation solutions are presented to support the concepts proposed at zoning.

As part of the Grove Traffic Impact Analysis (TIA), a traffic phasing agreement is included as an integral part of the recommendation. The traffic phasing agreement becomes part of the restrictive covenant on the property. The phasing report describes specific traffic outcomes that are to be achieved prior to the attainment of certain development rights and milestones. As the project enters the project development phase, and if additional design level mitigation is determined to be needed, the City Traffic Engineer has the right to demand those modifications. **In other words, the developer is locked into the mitigation concept included in the recommended TIA and has to demonstrate through geometric design that the development can achieve the mitigation levels prior to receiving a site development permit for each phase of construction. The phasing agreement requires installation of all mitigation prior to the development exceeding 2000 trips per day (below 2000 trips per day, the development may proceed without constructing mitigation per code allowances). Because the site plan must be approved prior to the start of construction, the City maintains its authority and leverage over the development to achieve the necessary mitigation.**

For example, the proposed mitigation at the intersection of Bull Creek with 45<sup>th</sup> Street will result in two left turn lanes, a through lane and a right turn lane with sidewalks and bicycle accommodations. This design as recommended in the TIA will likely require additional right-of-way on the southeast corner. It is typical to



require a developer to donate the right-of-way necessary for mitigation at the time of PUD designation. However, when the necessary right-of-way is not currently owned at the time of PUD designation, the developer can be allowed to proceed at his/her own risk. In the case of the Grove, the developer can proceed at his/her own risk that they will not obtain the necessary right-of-way to complete the identified mitigation project. The City is protected for the Grove project through the traffic phasing agreement which limits the development to 2,000 trips per day if the identified mitigation is not delivered.

If for whatever reason a developer cannot deliver the mitigation in the manner proposed in the TIA, the developer may propose alternate designs or alternative delivery methods to achieve the level of required mitigation identified in the TIA. The developer remains locked into the level of mitigation in terms of outcomes identified in the TIA (intersection performance, trip production, etc.), even if alternative methods are employed. This sets a high bar for substitution of any mitigation by the developer.

The amount of mitigation required of a development must be commensurate with its impact on the system. This principal is known as rough proportionality and requires each development to pay its roughly proportionate amount of the cost of improvements needed for the surrounding networks as determined by the City Traffic Engineer. Funding from this calculation can only be used on new capacity improvements that are determined to have a benefit to the development.

The city is also bound by historical practices with regards to establishing developer participation rates. The local practice of pro rata share has been used for decades in setting mitigation levels and has often resulted in lower levels of developer participation as compared to the calculated rough proportionality.

When the Grove development was first presented to ATD reviewers for consideration, the developer approached it from the pro rata share perspective, yielding an offer of \$750 thousand in proposed mitigation. Because of the diligence of ATD review staff, mitigation proposed as part of the recommended TIA is nearly \$3.2 Million and includes major improvements to Bull Creek Road, a new public street through the development, bicycle improvements, a major multi-purpose trail connection across Shoal Creek, and many safety enhancements. This increased level of mitigation is directly the result of the coordinated review effort by front-line and management staff throughout the process. All have been at the table throughout the process. There has been no truncating of any review process as has been alleged. The increased commitment funding for mitigation by the developer, resulting from the comprehensive involvement of both front line staff and management, is evidence that the process was complete and inclusive.

### Traffic Analysis:

As part of the staff review process, ATD traffic engineers reviewed trip generation, trip distribution and assignment, traffic operations, and preliminary geometrics:

- Trip Generation:  
Trip generation from the proposed development was reviewed to assure adherence to the trip generation rates for the proposed land uses, as approved through the TIA scoping process. Transit and non-motorized trip assumptions included in the TIA were reviewed during trip generation review and confirmed for validity. **It is my professional engineering opinion as the City Traffic Engineer that the trip generation documented in the recommended TIA is appropriate.**
- Traffic Distribution and Assignment:  
Trip distribution and network assignment of those trips identified for the proposed development were reviewed as part of the TIA analysis to verify the underlying assumptions were practical,

based on the location of the proposed development and existing adjacent transportation network. **It is my professional engineering opinion as the City Traffic Engineer that the traffic distribution and assignment assumptions documented in the recommended TIA are reasonable.**

- Traffic Operations:

Traffic operational analysis included in the TIA was reviewed by City staff. Traffic analysis included intersection capacity analysis (i.e., volume/capacity ratios, level of service calculations, vehicular delay, and queuing analysis at all intersections included within the scope of the TIA). Different traffic scenarios (AM and PM peak hours) were reviewed to identify the impact of the site traffic from the proposed development on the adjacent roadway network.

Mitigation improvements proposed to address traffic capacity issues were reviewed for adequacy based on the post development traffic analysis presented with the TIA. Review of proposed mitigations included optimization of signal timing at signalized intersections, additional turn-lanes at intersections, extension of turn bays to address potential queuing issues, additional traffic signals, and additional traffic control at driveways. Review of proposed mitigations were based on the post-development traffic analysis (volume/capacity ration, level of service, vehicular delay, and queuing analysis) for all the intersections as presented in the TIA scope. **It is my professional engineering opinion as the City Traffic Engineer that the traffic operations and resulting modifications to the transportation network adequately mitigate the mobility impacts of the development.**

- Geometric Review:

As part of the TIA review process, a geometric review was conducted to assess the proposed mitigations. A conceptual design of 45<sup>th</sup> Street at Bull Creek Rd intersection (Option 2 dated December 15, 2015) was submitted by the applicant (as per a developer transmittal, dated March 25, 2016) showing the proposed improvements at the intersection. The conceptual design included the use of potential right-of-way that is currently not owned by the developer.

The conceptual network design also includes the proposed alignment of a multi-use path east of Bull Creek Road (northbound) and an on-street protected bicycle facility in the southbound direction. Additionally, truck turning templates for the proposed northbound dual left turns at this intersection were reviewed.

Through the geometric review, the developer has made city traffic engineers aware of an existing geometric issue at the southeast corner of 45<sup>th</sup> Street and Bull Creek. Without the improvements proposed as mitigation by the developer, northbound single-unit panel trucks (the design vehicle used for analysis of truck maneuverability within the urban parts of Austin) cannot make a right turn and stay within their assigned lane. This creates the potential for crashes as the truck tries to maneuver around the substandard turning radius by intruding on adjacent or on-coming lanes. Although this situation exists throughout many of our older neighborhoods, identification of this deficiency now puts the city on notice of an existing network geometric safety issue that should be addressed. The geometric design at the intersection of 45<sup>th</sup> Street and Bull Creek, proposed by the developer, corrects the existing safety concern of the overly small right-turn turning radius. Since this is an existing condition, if the proposed mitigation is not achieved, it is incumbent on the City

Traffic Engineer to address the existing identified safety issue of insufficient turning radius for a single-unit vehicle to maneuver safely.

**In my professional engineering opinion as the City Traffic Engineer, the geometric improvements proposed in the recommended TIA are adequate to mitigate the impacts of the development.** Furthermore, implementation of the multi-use trail provides pedestrian east-west capacity that is constrained today on 45<sup>th</sup> Street.

### Technical Tools:

Questions related to technical process and tools have also been raised. These include the selection of land use based trip production rates documented in the TIA (TIA Table 1), questions related to the transit assumptions, extension of Jackson Street, and the submission of a TIA Amendment by the developer.

- SYNCRO Files:

As part of our standard review process, we request SYNCRO traffic simulation files from developers when they prepare a TIA. Professional traffic engineers, under the supervision and authority of the City Traffic Engineer request and analyze these files to verify the information summarized by the developer in the TIA. Staff also use the files to test assumptions and input information asked of the developer, and may generate an array of outcomes to consider before making a recommendation.

SYNCRO is a proven tool for analyzing traffic operations. The typical analysis approach is to first model existing conditions and then project a future “no-build” based on the existing condition network and funded transportation projects. The no-build condition represents the future transportation conditions in the absence of the proposed development (i.e., a no-build scenario). The future “build condition” model runs represent the future transportation conditions with the proposed development in place (i.e., after the development is built). Traffic projections for the build condition is compared to the no-build condition. Differences between the build and no-build condition define the projected impacts caused by the development. These estimates of impacts are used by licensed engineers to plan and design mitigation for the development. Input assumptions to the SYNCRO modeling tool are based on professional engineering guidelines such as the *ITE Trip Generation Manual*, and professional judgement.

SYNCRO is simply a tool used by transportation reviewers to form a professional opinion. Input assumptions as well as output measures and simulations are summarized in the TIA to explain the opinion of the engineer. ATD traffic engineers typically request the electronic copies of the SYNCRO runs from the developer and use them with the permission of the applicant to check inputs, geometric assumptions, intersection characteristics, test alternative solutions, and to evaluate the reasonableness of the mitigation proposals. These files represent intellectual information developed and owned by the applicant.

ATD professional engineering staff reviewed the inputs and outputs of the SYNCRO files provided by the Grove developer. ATD staff determined that the use of the SYNCRO model by the applicant’s engineer was reasonable and responsible. I believe that the appropriate amount of due diligence was applied to the TIA submittal. **In my professional opinion as the City Traffic Engineer, I believe that the resulting mitigation proposed by the developer resulting from the use of SYNCRO adequately mitigates the proposed development.**

- Trip Generation Rates:

The transportation industry relies on the *ITE Trip Generation Manual* as a proven accepted methodology for estimating trip generation rates of future land uses. In the absence of local data, this national standard provides a consistent approach for traffic impact analyses. The manual provides two basic approaches for estimating trip generation: use of regression equations or the use of weighted averages. The *ITE Trip Generation Manual, Volume 1, Chapter 3.3 Guiding Principles, p.9* provides guidance on when to use regression equations and when to use weighted averages (curve diagrams) for land uses when estimating trip generation rates. Engineering practice, including the City of Austin's standard practice, is to follow the ITE guidance which is based on the number of observations incorporated into the statistical analysis provided by the manual.

ATD traffic engineering staff reviewed Table 1 upon receipt of the TIA. When concerns related to the accuracy of values in this table surfaced, ATD staff again completed an additional supplementary review of each entry in the TIA's Table 1 related to trip generation rates (see Annotated TIA Table 1 below). Our finding is that the applicant's engineer followed the appropriate methods while estimating the trip generation values for the Grove.

**In my professional opinion as a registered engineer and as the City Traffic Engineer, the basis for using the *ITE Trip Generation Manual*, including its guidance in Volume 1, Chapter 3.3 Guiding Principles p.9 on when to use regression equations or averages, was followed by the developer's engineer and that the engineering calculations and resulting opinions are reasonable.** Trip generation rates used in the analysis all conform to our standard practice of deferring to the advice provided in the *ITE Trip Generation Manual*.

TIA Table 1 (Annotated)  
 Trip Generation - Unadjusted

	Land Use	Size		24-Hour	AM Peak Hour of Adjacent Street One Hour Between 7 and 9 am			PM Peak Hour of Adjacent Street One Hour Between 4 and 6 pm		
					Total	Enter	Exit	Total	Enter	Exit
		Amount	Units							
E	Single Family (210)	110	DU	1,146	87	22	65	114	72	42
E	Apartment (220)	600	DU	3,760	298	60	238	348	226	122
E	Residential Condo (230)	425	DU	2,265	164	28	136	197	132	65
R	Congregate Care Facility (253)	600	DU	1,212	36	21	15	102	56	46
R	Health/Fitness Club (492)	7,500	SF	247	11	5	5	26	15	11
E	Office (710)	200,000	SF	2,223	333	293	40	298	51	247
E	Medical Office (720)	25,000	SF	807	60	47	13	84	23	60
R	Specialty Retail (826)*	55,000	SF	2,438	108	67	41	153	68	86
R	Supermarket (850)	35,000	SF	3,578	119	74	45	332	169	163
E	Pharmacy/Drugstore w/o DT (880)	8,500	SF	766	11	7	4	71	35	36
R	Walk-in Bank (911)**	3,000	SF	364	0	0	0	36	16	20
R	Drinking Place (925)**	8,000	SF	907	0	0	0	91	60	31
R	Quality Restaurant (931)	15,000	SF	1,349	12	10	2	112	75	37
R	High Turnover Restaurant (932)	9,000	SF	1,144	97	54	44	89	53	35
R	Coffee/donut shop w/o DT (936)***	2,000	SF	1,762	217	111	106	82	41	41
Total				23,969	1,465	724	741	2,045	1,082	963

E Value correctly calculated using regression equation  
 R Value correctly calculated using average rate method

See: Trip Generation Handbook, 2<sup>nd</sup> Edition, Volume 1, Chapter 3.3, p. 9



- Trip Reduction Rates based on Transit Assumptions:

As part of the TIA recommended by the City Traffic Engineer, the developer has agreed to achieve a 5% trip reduction as a result of transit usage and other non-auto oriented travel methods. Initial discussion and comment from the City Traffic Engineer is that the developer's proposal was heavily based on untested assumptions that existing infrequent transit service on Bull Creek will be increased. Staff comments recommended that the developer verify this assumption with Capital Metro.

Capital Metro has recently published a 2025 Draft Concept of Service plan that would actually eliminate or further reduce the infrequent transit service along Bull Creek while at the same time dramatically increasing the frequency of services on 35<sup>th</sup> Street (See attached e-mail memorandum from Todd Hemingson, Capital Metro, August 31, 2016). The transit services on 35<sup>th</sup> Street are within one quarter mile of the development and based on consultation with Capital Metro, both the developer and the City Traffic Engineer believe that the trip reduction assumptions are reasonable. **Regardless of the potential change in the transit networks, the developer is responsible for achieving the 5% stated trip reduction goal recommended in the TIA.** In addition to the increased transit services on 35<sup>th</sup> Street, there are also a range of private transit and private mobility options that are available to the developer as tools to achieve the committed trip reduction (e.g., car share, transportation network companies, bike share, private shuttles, telecommuting, etc.). **Because the developer is bound by the phasing agreement and based on the input of Capital Metro, it is my professional opinion as a registered engineer and as the City Traffic Engineer that the trip reduction rate assumed as part of the development is appropriate and can be achieved.**

- Signal at MoPAC and 45<sup>th</sup> Street/Camp Mabry Gate:

Concerns have been voiced that the developer analyzed this intersection as a signalized intersection using SYNCRO but that construction of a signal at this location is not included in the mitigation plan and therefore the entire analysis is invalid. The intersection was analyzed as a signalized intersection in the future build condition using SYNCRO. This is acknowledged in the recommended TIA. The intersection is currently failing only during the PM Peak period, due to a lack of gaps in the traffic stream on 45<sup>th</sup> street and the delay created for westbound turning traffic off of the MoPAC ramp. At other times of the day, the intersection operates in uncongested conditions (level of service A). Because the intersection is at the end of a MoPAC ramp and because the movement now failing during the PM peak is the off-bound ramp left turn, the decision to request mitigation at this intersection was deferred and not requested of the applicant. The failing of this intersection only occurs when MoPAC is congested during the PM Peak period, when travel speeds on the off-ramp are similar to those on the mainline (low speed and congested). Lack of a signal at this location is not seen to present a safety concern.

The City is aware that TxDOT does not have funding to build a signal at this location. However, should the intersection warrant a signal for longer periods of the day, either the State or the City could be obligated to construct the signal. Neither the City nor TxDOT tend to construct signals if only one signal warrant (i.e. a peak period warrant) is met. Although signalization could help the existing PM peak operations, it is likely in my opinion that a signal would increase delay during other times of day, negatively affecting travel. It should also be noted that any project at this location requires TxDOT concurrence before installation.

Not mitigating the known existing PM Peak congestion does not invalidate the remainder of the TIA and allows the City to concentrate mitigation benefits near to the development and within the surrounding neighborhood. It is my opinion that regardless of the signalization at this intersection, the conclusions of the TIA and selection of mitigation measures are valid and consistent with industry practices.



**It is my professional opinion that the proposed development, even without signalization at this intersection, is adequately mitigating the impacts of the proposed development.**

- Extension of Jackson Street through the Development as a Public Street:

Over the course of the review process for the Grove TIA, the option for a connection of Jackson Street to 45<sup>th</sup> Street became available when the developer purchased an adjacent house parcel as part of their initial development planning. As the City Traffic Engineer, I believe that the tenets of the *Imagine Austin Comprehensive Plan* direct me to seek increased grid connectivity throughout the urban network and I observed that a new Jackson Street connection would provide greater permeability of the development and connectivity to the grid. I also believed that a second connection through the center of the proposed development would provide better access for public services (fire, medical aid, utilities, garbage collection, etc.) As steward of the transportation network, I requested that this connection be added to the list of mitigation to be required of the developer. The Public Works Director, who was present at the meeting with the developer when the request was made, determined that this street should be a publicly owned street due to the connectivity it provided and in support of my recommendation to preserve a public through-way within the development. Public ownership maximizes the City's flexibility in managing the street over the long term. The City is able to establish appropriate speed limits, set regulations as to the use of the street by large vehicles, manage parking, and locate necessary public utilities. Another key reason for the determination of Jackson Street remaining public is the proposed connection to 45<sup>th</sup> Street. This is a connection that is requested by the City Traffic Engineer. It is not clear that a private connection through the residential properties purchased by the developer could be constructed due to the restrictive covenants placed on these properties when they were platted. As a public street, the Jackson Street connection through to 45<sup>th</sup> Street is not controlled by the restrictive covenants. The Public Works Director, in conjunction with the City Traffic Engineer, is responsible for making this decision because of his/her responsibility for maintaining the roadway network once it is established. In this way, the City has the ability to mandate pavement and subsurface designs and is in charge of long-term easements within the street, should a new one require designation. Public access to the roadway cannot be limited by the adjacent property owners and the City has the ability to protect the rights of the traveling public that may or may not be doing business in the adjacent development.

Other streets within the developer's proposed network connecting to the central public Jackson Street spine, on the other hand, are recommended to remain private streets. This too was a joint decision by the Public Works Director and City Traffic Engineer. This recommendation shifts the cost of maintaining these local streets to the developer or his/her successor. All of the remaining streets provide only local access within the proposed development. The design of a private street, unlike a public one, can be made more consistent with the surrounding development as long as it is not in conflict with City design concerns (for example, it could be paved using brick rather than the standard asphalt design of a public street). Private streets remain the responsibility of the land owner and do not require public maintenance, saving the city from using public taxes to maintain and preserve roadways wholly within the development and providing only access to the affected properties and hence having a limited public purpose. These local access roadways are distinctly different as compared to the proposed Jackson Street which will provide access to and through the entire proposed development and serve as a public access portal into the development. **Functioning as a collector, the proposed new section of Jackson Street serves a public purpose and it is my professional engineering opinion that it should be owned and maintained by the City in trust for the public.**

To accommodate the concern of local residents that this new connection will generate additional left turns from 45<sup>th</sup> Street or could become a preferred cut-through, City staff requested that its intersection

at 45<sup>th</sup> Street be designed as a right-in and right-out only connection. This operational control does not diminish the anticipated public nature of this connection. A pedestrian hybrid beacon and pedestrian crosswalk will also be provided, connecting the neighborhood with a safe pedestrian crossing of 45<sup>th</sup> Street that does not exist today at this location. To accommodate these requests, the developer has notified the City that it has in fact purchased an additional property adjacent to the first house they acquired. These two parcels provide a preferred alignment for the Jackson Street Connection and a right-in and right-out design. It provides better alignment with the existing street north of 45<sup>th</sup> Street and allows for a safer placement of the requested pedestrian amenities. Detailed designs of this intersection, along with the pedestrian amenities, will be developed during the site design process, allowing City traffic engineers to review its specific attributes. At this phase of analysis, it provides a reasonable concept as part of the mitigation proposal.

**In my professional engineering opinion as the City Traffic Engineer, I believe this new intersection conforms to the guidance of Imagine Austin and also conforms to safe engineering geometric and operational design standards and that the extension of Jackson Street should be a public street.**

- TIA Amendment:

On July 21, 2016, the developer for the Grove submitted a proposed amendment to their original TIA, subsequent to the approval by the Planning Commission, and prior to consideration by Council. The primary difference proposed with the amendment is an alternate design of the 45<sup>th</sup> at Bull Creek intersection. Additionally, through the amendment, the developer has disclosed that they now own a second house parcel not previously identified in the TIA and can now provide an optimum alignment for the Jackson Street public connection to 45<sup>th</sup> Street. ATD met with the developer's engineer several times to confirm the changed assumptions and geometric proposals incorporated in the amendment proposal.

On September 12, 2016, the developer informed staff that they wished to withdraw the amendment because they have now obtained all necessary right-of-way to provide the originally proposed design of the intersection at 45<sup>th</sup> Street and Bull Creek (See Attachment). They have confirmed that they also acquired the additional property at the proposed connection of Jackson Street and 45<sup>th</sup> Street. This additional property will allow a more optimal design and would allow a right-in and right-out connection with improved pedestrian connectivity and safety equipment. Additional review of this alignment and design will occur at the site design phase of development.

Given the withdrawal of the developer's TIA amendment, staff will cease further analysis of the amendment. The recommended TIA remains the official documentation of potential impacts and mitigation.

**In my professional engineering opinion, I believe that this recommendation to stop any further analysis is consistent with our previous engineering recommendation to you based on the official TIA.**

In closing, the role of the City Traffic Engineer is one of trust and professionalism. I believe that I and my professional engineering staff that work in ATD have performed admirably, honestly, and professionally. As a registered professional engineer, I believe I and my professional engineering staff have conducted themselves consistent with the Texas Engineering Code of Ethics and with Texas Law. I and my staff are available should you require further information regarding these issues.

Attachments:

- Todd Hemingson E-Mail Memorandum, August 31, 2016
- Jeffery Howard Letter Withdrawing TIA Amendment, September 12, 2016

## Spillar, Rob

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**From:** Hemingson, Todd <Todd.Hemingson@capmetro.org>  
**Sent:** Wednesday, August 31, 2016 2:38 PM  
**To:** Spillar, Rob  
**Subject:** The Grove and Connections 2025

Rob- Per our discussions, I'm writing to update you on the recent recommendations of the Connections 2025 Plan as it relates to The Grove development. Our team has recommended eliminating Route 19 due to low ridership and other factors, which would in turn remove service from Bull Creek Road which fronts the development site. We are currently taking public input on the Connections 2025 Plan and expect to present a final plan to the board in November. However, specific service changes resulting from the plan will also include a second round of public input, and board action, several months prior to implementation. The specific timing for the route change has yet to be determined, but preliminarily would occur in mid-to-late 2017.

The plan also recommends establishing a new crosstown route on W. 35/38<sup>th</sup> Streets with stops near the intersection with Bull Creek Road. This service is slated to offer more frequent (every 15 minute), provide a greater span of service (operating earlier and later) and include improved weekend service levels compared to the current #19 route. The 35/38<sup>th</sup> Street service is within walking distance of a significant portion of the development site. While we do recognize that the walking distance will increase, and that such a walk will not always be feasible for many (on the hottest days of summer, for example), we do believe that based on national and even global experience people will use transit more with increased frequency even if it means a slightly further walk. Also, we do plan to be flexible and remain open to adjusting the plan to accommodate growth and development; we would consider a Community Service route in the future (although it may be necessary to identify supplemental funding to help support it); and we do intend to find ways to develop 'layers' of mobility that work together to provide alternatives to driving single-occupant vehicles, with TNCs, bikeshare and ultimately autonomous vehicles as examples of complementary mobility options that could provide improved connectivity to The Grove location.

Transit supportive developments featuring higher densities and walkable mixed use, along with well-managed parking and transportation demand management programs are, in our view, consistent with Imagine Austin and Connections 2025 and do facilitate less drive-alone behavior and more walking, biking and transit use. We welcome the opportunity to work with the City of Austin, the developer and other interested stakeholders in developing and refining mobility solutions for this development.

If you have questions or need more information, please let me know.

Todd Hemingson, AICP  
V.P. Strategic Planning & Development  
Capital Metro



September 12, 2016

Mr. Robert J. Spillar, P.E., Director  
Austin Transportation Department  
City of Austin  
3701 Lake Austin Blvd.  
Austin, Texas 78703

*via email at [rob.spillar@austintexas.gov](mailto:rob.spillar@austintexas.gov)*

RE: Withdrawal of July 21, 2016 TIA Addendum for The Grove at Shoal Creek PUD;  
City of Austin File No. C814-2015-0074

Dear Mr. Spillar:

As you recall, on or about July 21, 2016, my client ARG Bull Creek, Ltd. (the "Applicant") submitted an "Addendum to The Grove at Shoal Creek Traffic Impact Analysis" prepared by James Schwerdtfeger, P.E. On behalf of the Applicant, please be advised that the Applicant is hereby withdrawing the Addendum and asks that the City take no further action regarding it.

The purpose of the Addendum was *not* to serve as a new or substitute analysis to the existing approved traffic impact analysis ("TIA") for The Grove at Shoal Creek PUD. The approved TIA remains in full effect and is the operative TIA that governs traffic mitigation for this project as reflected in the City's TIA Memo dated July 11, 2016. The currently approved TIA requires a very, very small amount of additional right-of-way to accommodate a 4-lane north bound Bull Creek Road configuration. As a result, the City's TIA Memo noted that if right-of-way were unavailable at the time of site plan review, such unavailability "may affect site plan review and approval."

The Addendum was, therefore, submitted for the sole purpose of demonstrating that a 3-lane north bound Bull Creek Road alternative approach could mitigate traffic at the 45<sup>th</sup> Street and Bull Creek Road intersection without any right-of-way being required from the lot located at 2645 W. 45<sup>th</sup> Street. The Addendum only presented an alternative for staff to consider that did not involve right-of-way in an effort to answer any concerns about the unavailability of the right-of-way in the future.

I am very pleased to report that the Applicant has now entered into a contract to acquire the entire 2645 W. 45<sup>th</sup> Street lot. As a result, the Applicant can confirm that any right-of-way required by the approved TIA is fully available and the Addendum is no longer necessary. For these reasons, the Addendum is hereby withdrawn and there is no further need for the City to

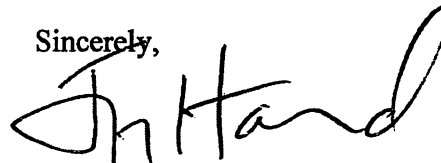
Mr. Robert J. Spillar, P.E., Director  
Austin Transportation Department  
City of Austin  
September 12, 2016  
Page 2

review the Addendum. The TIA as currently approved by City staff, reflected in the TIA Memo of July 11, 2016, and recommended by the Zoning and Platting Commission shall continue to apply to the project.

Notwithstanding the foregoing, and for clarification, the most recently proposed intersection of Jackson Avenue and 45<sup>th</sup> Street that is being considered by staff simultaneously with the Addendum remains the Applicant's proposed configuration of that intersection. That proposed intersection will be (i) right-in, right-out only, and (ii) aligned with Chiappero Street, as depicted in the attached conceptual design. The City's TIA Memo calls for this connection, and the enclosed conceptual design was provided to staff to answer any questions over how this connection might occur. Withdrawal of the Addendum does not mean that this connection or the proposed configuration is also being withdrawn. The Applicant understands that the enclosed conceptual design of this intersection has, subject to review and approval of final construction drawings, been accepted by the City staff as a generally and conceptually feasible approach to this intersection.

If you should have any questions or comments, please do not hesitate to contact me. Thank you and all of your staff for your consideration of this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Howard", written over the word "Sincerely,".

Jeffrey S. Howard

cc: Rodney Gonzales, Development Services Department  
Andrew Linseisen, Development Service Department  
Greg Guernsey, Planning and Zoning Department  
Jerry Rusthoven, Planning and Zoning Department  
Eric Bollich, Austin Transportation Department  
Garrett Martin  
Ron Thrower  
Robert Deegan  
Brian Williams







## MEMORANDUM

**TO:** Assistant City Manager Robert Goode

**FROM:** Rodney Gonzales, Director, Development Services Department  
Robert Spillar, Director, Austin Transportation Department

**DATE:** September 9, 2016

**SUBJECT:** Process for the review of the Proposed Grove Development

*Rodney Gonzales*  
*Robert Spillar*

The purpose of this memorandum is to address questions and concerns expressed by members of City Council regarding the review process undertaken for the Grove at Shoal Creek Planned Unit Development (PUD).

A Traffic Impact Analysis (TIA) is both a planning and technical document that incorporates the forecasting of future transportation conditions and the implementation of traffic mitigation measures. Applications for zoning changes require the submission of a TIA if the resulting change in land uses or density will result in an increase of more than 2,000 trips per day. The TIA describes the potential impacts of a proposed development on the transportation system within the area of the proposed zoning change. The TIA also includes proposed traffic mitigation measures that could be implemented to offset the potential impacts on the transportation system. The role of both the Development Services Department (DSD) and Austin Transportation Department (ATD) is to review and scrutinize the TIA and to assess the potential development impacts and proposed mitigation as part of the zoning change request application.

### Establishment of Improvements

During the change of zoning application, it is appropriate to only review conceptual designs of the proposed development and traffic mitigation measures. At this stage of the proposed development, it is financially imprudent for the project applicant to spend the time and money to bring forward site specific details. The information from conceptual designs is sufficient to model future improvements and mitigation proposals. The conceptual designs show the overall approximate configurations and geometry of proposed improvements based on site record information and identify the locations of significant constraints such as existing right-of-way widths. The conceptual designs are utilized as the basis for future construction documents to implement the traffic mitigation measures. The construction documents are reviewed for approval through the City's Site Development Permit process.

### Site Development Permit Process

The City of Austin's Site Development Permit process includes a multi-department and multi-disciplinary review of detailed engineering construction documents to ensure project compliance with adopted City of Austin Codes and Ordinances. As part of the final engineering design process, conceptual designs proposed within the TIA are refined to accommodate constraints identified by current as-built site surveys and compliance with code and criteria. The as-built surveys provide site specific details including tree, topographic, utility locations, and right-of-way. The Site Development Permit process is coordinated by DSD. Projects that propose the implementation of mitigation improvements are reviewed by the DSD transportation review team, the ATD transportation review team, and where applicable, the Texas Department of Transportation, Travis County, and Williamson County.



## Transportation Review Process

The Austin Transportation Department (ATD) has received questions and concerns related to the process for review of Transportation Impact Statements (TIA) by the office of the City Traffic Engineer and staff in the Department. ATD has provided a separate memorandum related to the technical issues raised and the following subsections respond to procedural issues.

- Senior Management Participation:

Senior management in the Austin Transportation Department (ATD) participated directly in the review of the Grove TIA. A concern has been voiced that senior staff somehow suppressed or discounted the opinions of junior or “front line” engineers in an effort to support the claims of the developer. The implication is that senior staff are less qualified than front line staff to analyze and determine appropriate mitigation for traffic impacts identified in the developer’s Traffic Impact Analysis (TIA).

ATD was formed in 2008. As part of that formation, ATD inherited various elements and responsibilities of the One Stop Shop Development Services unit related to mobility. Right-of-way management transitioned to ATD and we provide technical support through the one stop shop for review and analysis of development impacts to the physical right-of-way. Likewise, transportation related analyses (whether made in Development Services or directly by ATD transportation engineering reviewers) are made under the authority of the City Traffic Engineer which resides within ATD. The City Traffic Engineer position is identified by the City Charter as the office with authority to make operational recommendations and administrative decisions within the city related to mobility. Since the formation of ATD, registered engineers in ATD have increasingly taken responsibility for detailed review of TIAs, especially when significant elements of the Austin transportation network are potentially affected (i.e., critical arterials, access to major regional corridors such as IH 35 and MoPAC, and the Capital Metro Transit system). ATD assists in all TIAs and Development Service reviews, but is most involved when the anticipated project may result in more complicated transportation issues. In the past several years, as ATD has gained sufficient staffing in the traffic engineering division, we have been able to apply the appropriate oversight for those projects requiring greater scrutiny of their TIAs.

ATD maintains a documented organizational structure. Front line engineers report to division managers; division managers to assistant directors; and all perform their responsibility under the supervision and authority of the City Traffic Engineer. The Director of Transportation is designated by the City Manager as the official City Traffic Engineer. All decisions and communications by individuals within the department are made on behalf of the City Traffic Engineer and under his/her delegation of responsibilities. Complicated projects, including ones that draw the attention of City policy makers, are elevated in ATD to assure that the City Traffic Engineer is fully vested in the position being taken. Historically, this has been true on high profile projects such as the Triangle and Mueller Redevelopment Project. More recently, this was the case for the Garza Tract and now the Grove where the City Traffic Engineer participated in the review and determination of the appropriate response.

The City Traffic Engineer chose to increase senior management involvement in the Grove project because of the sensitivity of the issues related to traffic and after council offices expressed concerns with the project and review process. It is more appropriate for the City Traffic Engineer (Director) to respond to Council questions and public inquiries on controversial developments rather than front line staff so that junior staff are shielded from public pressure and can perform their best technical work. This allows junior staff to make recommendations to the City Traffic Engineer

based on their technical insights. The process does however mean that the official opinion is formed through a cumulative consensus building process. Senior staff, all of whom are registered engineers in the State of Texas, have the responsibility of recommending to the City Traffic Engineer a course of action so the City Traffic Engineer may recommend a course of action to the City Manager.

In the case of the Grove, the internal technical discussions have resulted in healthy debate of the various elements related to mobility. It is rare that a City is presented with the redevelopment of nearly 70 acres of vacant land within an established urban neighborhood. It is clear that any development of the Grove property will result in dramatically changed traffic generation and travel patterns than exist today. No doubt, properties immediately adjacent to the existing vacant property will see the greatest changed conditions compared to the remainder of the surrounding neighborhood. Taking the competing needs of the existing community and those of the developer into consideration, it is the responsibility of the City Traffic Engineer to determine if the project proposal adequately mitigates the mobility impacts it is likely to cause. If that development, like the Grove, is within an existing urban neighborhood where travel conditions are already congested, the responsibility to mitigate the project impacts remains a requirement of the development. A proposed development is not required to remedy existing deficiencies, only to mitigate traffic generated by the project. If a proposed development can present a plan through a TIA that demonstrates it adequately mitigates that development's impacts, then it is the duty of the City Traffic Engineer to make a positive recommendation to Council.

- **Front-Line Staff Comments:**

An e-mail from a front line engineer in ATD to the Manager of the Traffic Engineering division has been used to speculate that there is a difference in opinion between front line staff and senior management at ATD (see attached March 22 e-mail). The e-mail refers to comments made by the staffer and other front-line staff in a draft memorandum dated March 22<sup>nd</sup> that was drafted by the front line engineers but not sent to the developer. The DRAFT memo from the front line staff included what was observed to be information/requests appropriate for the zoning discussion and other comments that were more appropriate for the design review. The front line staff engineer was uncomfortable with the information that was going to be withheld from transmittal until the more detailed phase of the review process and wanted his name removed from the communication. Subsequent discussions between front line staff and engineering management suggest that the reason for the concern was that front line staff did not have the understanding that developments going through both the zoning and the site development process receive ATD scrutiny at both phases of development and that it was the intent of the City Traffic Engineer to require ATD review of the site plan level mitigation designs.

All concerns and comments raised by the front line engineers were in fact communicated to the developer or his agents over the course of the summer, except for one related to addressing existing grass triangles at the corner of 45<sup>th</sup> and Bull Creek (i.e., a comment intended to correct an existing design deficiency – not a zoning issue). The table below provides the cross reference between the points raised by the front line engineers and those transmitted to the developer.

## Cross Reference Table

March 22, 2016 DRAFT front line engineering recommendation	Communication to developer
TIA comment 1 related to Bull Creek and 45 <sup>th</sup> Street	Transmitted to developer June 28, 2016, TIA comment 1
TIA comment 2 related to concrete safety barrier along Bull Creek Rd.	Transmitted to developer June 28, 2016 TIA comment 10
TIA comment 3 related to 14% traffic on Jackson Street	Transmitted to developer June 28, 2016 TIA comment 2
TIA comment 4 related to transit headways	Transmitted to developer March 25, 2016 TIA comment B
Bull Creek Rd/45 <sup>th</sup> Street comment related to design of sidewalk and space for signal cabinet	This is a minor design comment. At a March 22 <sup>nd</sup> meeting with the developer, the developer agreed to the higher mitigation participation and to all mitigation requirements – regardless of final cost, including the remedy of existing identified deficiencies in the intersections they are reconstructing.
Bull Creek Rd Item 1 related to PHB and crosswalks at driveway 1	Transmitted to developer June 28, 2016 TIA comment 3
Bull Creek Rd Item 2 related to traffic signal, crosswalk at driveway 2	Transmitted to developer June 28, 2016 TIA comment 5
Bull Creek Rd Item 3 related to refuge island driveway 4	Transmitted to developer June 28, 2016 TIA comment 7
Bull Creek Rd Item 4 related to PHB at driveway 4	Transmitted to developer June 28, 2016 TIA comment 8
Bull Creek Rd Item 5 related to 167' taper south of driveway 4	Transmitted to developer June 28, 2016 TIA comment 9

(See Memorandums, attached)

As can be seen from the cross reference table, all recommendations raised by front line engineers were communicated to the developer. Furthermore, in a June 28, 2016 transmittal to the developer, it was clearly communicated to the developer that staff reserved the right to review the development mitigation measures at the site plan review and approval stage of development (See Jeff Howard Memorandum, June 28, 2016). Referring to geometric elements of the proposed mitigation concepts, the notice reads “These elements may affect site plan review and approval as they are considered integral to the viability of the subject development as proposed.”

From a management perspective, we believe and maintain that the process was transparent and provided sufficient time for all levels of the organization to be heard and involved in the process. Participation at all levels of the organization was facilitated and there was no truncation of the process. As Directors responsible for the One Stop and development services, we stand behind the cumulative recommendation that represents the input of both junior and senior staff (all of whom are registered professional engineers).

- **Traffic Phasing Agreement:**

The Grove is a unique development in that it was previously owned by the State of Texas and therefore had no zoning prior to its sale. The developer has proposed Planned Unit Development (PUD) zoning so that they can have greater assurances as to their final investment. Once zoning is established, PUD or otherwise, the development will then move to the site development stage. Staff review of the mobility attributes occurs at both stages of development, zoning and site development. At the zoning stage of development, it is incumbent on the developer to show

plausible concepts to mitigate the estimated transportation impacts caused by the development. They are required to provide a proof of concept for mitigation. Perfection of those mitigation concepts occurs during final design. At the site development phase, design-tested mitigation solutions are presented to support the concepts proposed during zoning.

As part of the Grove TIA, a traffic phasing agreement is included as an integral part of the recommendation. The traffic phasing agreement becomes part of the restrictive covenant on the property. The phasing report describes specific traffic outcomes that are to be achieved prior to the attainment of certain development rights and milestones. As the project enters the project development phase, and if additional design level traffic mitigation is determined to be needed, the City Traffic Engineer has the right to demand those modifications. In other words, the developer is locked into the mitigation concept included in the recommended TIA and has to demonstrate through geometric design that the development can achieve the mitigation levels prior to receiving a site development permit. Because the site plan must be approved prior to the start of construction, the City maintains its authority and leverage over the development to achieve the necessary mitigation.

- **Determination of Traffic Mitigation:**

The amount of mitigation required of a development must be commensurate with its impact on the system. This principal is known as rough proportionality and requires each development to pay its roughly proportionate amount of the cost of improvements needed for the surrounding networks (as determined by the City Traffic Engineer). Funding from this calculation can only be used on new capacity improvements.

The city is also bound by historical practices with regards to establishing developer participation rates. The local practice of pro rata share has been used for decades in setting mitigation levels and has often resulted in lower levels of developer participation as compared to the calculated rough proportionality.

When the Grove development was first presented to ATD reviewers for consideration, the developer approached it from the pro rata share perspective, yielding an offer of just \$750 thousand in proposed mitigation. Because of the diligence of ATD review staff, mitigation proposed as part of the recommended TIA is nearly \$3.2 Million and includes major improvements to Bull Creek Road, a new public street through the development, bicycle improvements, a major multi-purpose trail connection across Shoal Creek, and many safety enhancements. This increased level of mitigation (four times what would normally have been accepted in previous development review processes) is directly the result of coordinated review effort by front-line and management staff throughout the process. The increased commitment funding for mitigation by the developer and resulting from the more involved process is evidence of this.

As part of the PUD process it is typical to require a developer to donate the right-of-way necessary for mitigation at the time of PUD designation. However, when the necessary right-of-way is not currently owned at the time of PUD designation by the developer, the developer can be allowed to proceed at his/her financial risk. In the case of the Grove, the developer can proceed at his/her own risk that they will not obtain the necessary right-of-way to complete the identified mitigation project and therefore be subject to the elements of the phasing agreement (i.e., in the specific case of the Grove, they could build up to the 2000 vehicle trips without the necessary mitigation and right-of-way, but without the mitigation they would not be able to develop beyond the 2000 vehicle trip limit.



If for whatever reason a developer cannot achieve the mitigation promised in an approved TIA, the developer may propose alternate designs or alternative delivery methods to achieve the level of required mitigation, but the traffic impacts must still be mitigated for the development to be realized. The bar is set high to match or improve upon the mitigation offered in the original TIA.

- **SYNCRO Files:**

A question has been raised related to denial of access to SYNCRO modeling files used in the development of the TIA.

As part of the City's standard review process, the Transportation Department requests SYNCRO traffic simulation files from developers when they prepare a TIA. The SYNCRO files contain data that is used to develop the traffic simulation model in the TIA.

As you know, the City received a public information act request for the SYNCRO files, among other things. The Developer's traffic engineer informed the City that he did not want to release its SYNCRO file data because it is proprietary information.

When the City receives a public information act request for information created and submitted to the city by outside companies, and they object to its release, the City must write to the Attorney General and request permission to withhold the requested documents. That is what happened in this situation. On March 15, 2016 the City advised the Attorney General that the information was being requested and asked for a determination whether the information should be withheld from release.

On March 20, 2016 the Office of the Texas Attorney General ruled that the information embodied by the coding in the SYNCRO file could be withheld from release under the public information act. While the City is able to supply conclusions based on the modeling and tabulations of input and output data, the City may not release the underlying electronic SYNCRO networks and other coding specifics. Any public release of this information is solely at the discretion of the Developer's traffic engineer.

- **March 22, 2016 Meeting:**

Concerns have been expressed by a Council office regarding this meeting. This meeting has been described in a previous memo distributed on May 9, 2016 (attached). The meeting provided an opportunity for senior staff, including the City Traffic Engineer, to confirm issues that remained unresolved such as the connection of Jackson Street with 45<sup>th</sup> Street. All issues resolved at this meeting were informed by the work completed by front line staff and based on the collective knowledge of the participating departments.

- **Unsigned Memorandums:**

Concerns have been expressed by Council offices regarding memorandums produced by ATD staff in regards to review comments that did not carry the signature of the engineer responsible for the communication.

Attached are the two memorandums specifically raising concern for Council offices. In preparing this response, authors of both communications were consulted (Gordon Derr and Eric Bollich with regards to the 6/28/16 memo; Andrew Linseisen and Gordon Derr with regards to the 7/11/16 joint internal memorandum).

The 6/28/16 memorandum to the developer indicates that the communication is from the Austin Transportation Department. It was coordinated and compiled by ATD's transportation engineering division and should have carried the name or signature of that Division Manager, Eric Bollich, as the author so that we could better track the communication. However, the communication was part of the on-going negotiation of mitigation measures and evaluation issues with the developer. This memo was accompanied with a verbal communication as well and the information was successfully transmitted.

State Law and City Policy do not require such a memorandum to be signed by a registered engineer. The letter represents a negotiations letter where the City staff member, on behalf of the City Traffic Engineer, is working through the definition of the needed mitigation and elements of the proposed Grove improvements. The completed Traffic Impact Analysis (TIA) dated March 28, 2016, represents the engineering document that requires a professional seal from the engineer of record (in this case, the developer's engineer). The City's acceptance of the TIA with identified modifications will be memorialized by Council action.

The 7/11/16 internal memorandum to the case manager at PAZ clearly indicates the two registered engineers from whom the communication was sent. The communication was sent via internal city e-mail. Our understanding is that there is no city policy that requires such electronic memorandums to be signed, nor is there a state law that requires such a memorandum to be signed. The original communication was coordinated through Andy Linseisen and sent by him electronically, after he had received confirmation from Gordon that he approved. This memorandum does not represent a record of an engineering opinion. It is part of the negotiations record expressing the needs of the City. As with the previous memo, the engineering record is established when the TIA is sealed by the developer's engineer and then memorialized by Council action.

The Transportation Director recognizes that it is a superior practice to sign external communications. Internal communications that may be transmitted to an external customer would also benefit from signature. The Transportation Director will be reviewing departmental practices and procedures to make this our standard in ATD.

### Attachments

- Andre Betit email, March 22, 2016
- Bryan Golden Memorandum, March 22, 2016
- Brian Williams/James Schwerdtfeger Memorandum, March 25, 2016
- Jeff Howard Memorandum, June 28, 2016

**From:** Betit, Andre  
**Sent:** Tuesday, March 22, 2016 2:48 PM  
**To:** Bollich, Eric  
**Cc:** Craig, Brian  
**Subject:** RE: revised comments memorandum on The Grove TIA

Eric,

As we discussed, please remove my name from the memo.

Thanks,

André

André H. Betit, Jr, PE  
Engineer C  
1501 Toomey Rd.  
Austin, TX 78704

Office: (512) 974-4091  
Fax: (512) 974-4068  
[Andre.Betit@austintexas.gov](mailto:Andre.Betit@austintexas.gov)

**From:** Bollich, Eric  
**Sent:** Tuesday, March 22, 2016 1:43 PM  
**To:** James, Scott <Scott.James@austintexas.gov>; Linseisen, Andrew <Andrew.Linseisen@austintexas.gov>; Adams, George <George.Adams@austintexas.gov>  
**Cc:** Barua, Upal <Upal.Barua@austintexas.gov>; Golden, Bryan <Bryan.Golden@austintexas.gov>; Craig, Brian <Brian.Craig@austintexas.gov>; Borkar-Desai, Dipti <Dipti.Borkar-Desai@austintexas.gov>; Beaudet, Annick <Annick.Beaudet@austintexas.gov>; Derr, Gordon <Gordon.Derr@austintexas.gov>; Betit, Andre <Andre.Betit@austintexas.gov>  
**Subject:** RE: revised comments memorandum on The Grove TIA  
**Importance:** High

We (Andy, George, Gordon, Annick) met this morning and discussed the Grove issues and our comments. We have a meeting **this afternoon at 4:00** with the applicant team to talk through our comments. So please review that I've captured them correctly and offer comments ASAP.

**From:** Betit, Andre  
**Sent:** Tuesday, March 22, 2016 9:09 AM  
**To:** James, Scott; Bollich, Eric; Linseisen, Andrew  
**Cc:** Barua, Upal; Golden, Bryan; Craig, Brian; Borkar-Desai, Dipti  
**Subject:** RE: revised comments memorandum on The Grove TIA

All,

I do not feel we should change the ATD memo to remove the comments as I am do not believe we will see this once it passes the zoning stage and these geometric issues are critical.

Thanks,

André

André H. Betit, Jr, PE  
Engineer C  
1501 Toomey Rd.  
Austin, TX 78704

Office: (512) 974-4091  
Fax: (512) 974-4068  
[Andre.Betit@austintexas.gov](mailto:Andre.Betit@austintexas.gov)

**From:** James, Scott  
**Sent:** Tuesday, March 22, 2016 8:53 AM  
**To:** Bollich, Eric <[Eric.Bollich@austintexas.gov](mailto:Eric.Bollich@austintexas.gov)>; Linseisen, Andrew <[Andrew.Linseisen@austintexas.gov](mailto:Andrew.Linseisen@austintexas.gov)>  
**Cc:** Betit, Andre <[Andre.Betit@austintexas.gov](mailto:Andre.Betit@austintexas.gov)>; Barua, Upal <[Upal.Barua@austintexas.gov](mailto:Upal.Barua@austintexas.gov)>; Golden, Bryan <[Bryan.Golden@austintexas.gov](mailto:Bryan.Golden@austintexas.gov)>; Craig, Brian <[Brian.Craig@austintexas.gov](mailto:Brian.Craig@austintexas.gov)>; Borkar-Desai, Dipti <[Dipti.Borkar-Desai@austintexas.gov](mailto:Dipti.Borkar-Desai@austintexas.gov)>  
**Subject:** revised comments memorandum on The Grove TIA

Andy and Eric,

Good morning, please find attached two revised memoranda for staff comments on The Grove submittal.

They are in DRAFT form and reflect recent discussions on how to amend the comments that are more related to geometric elements (and not necessarily addressed at zoning).

However, I have concerns (shared by both André and Upal), that the staff review of the geometric elements will not occur at site plan, at least not at the same level of scrutiny. Therefore, staff comments on the need for adequate ROW to permit for turning lanes, storage lanes, transitions from at grade to shared use path, etc are valid, even though detailed site design will be handled separately from the zoning application.

With this in mind, I propose to include the general comment:

"Staff reserves the right to conduct further review of the subject application with regard to geometric constraints that may arise due to inadequate or unavailable right-of-way that may affect the operational objectives of proposed infrastructure improvements. These elements may affect site plan review and approval as they are considered integral to the viability of the subject development as proposed."

This comment may be listed in either DSD or ATD's memo, perhaps both.

Please advise.

Thanks.

Scott

Scott A. James, P.E., PTOE  
Land Use Review | Transportation  
Development Services Department  
505 Barton Springs Road, 4<sup>th</sup> Floor







# MEMORANDUM

## DRAFT

To: Bryan Golden  
Development Services Department

Date: March 22, 2016

Project: The Grove At Shoal  
Creek

CC: Scott A. James, PE

From: André H. Betit, Jr. PE  
Brian Craig, PE  
Upal Barua, PE  
Austin Transportation Department

Re: TIA Comments  
(February 2, 2016)

Page: 1 of 2

The Arterial Management Division has reviewed the February 2, 2016 revision of the traffic report regarding the *"The Grove at Shoal Creek, Traffic Impact Analysis"*, prepared by R-K Traffic Engineering, LLC. The following comments summarize our review findings:

#### TIA Comments:

1. The 2018 analysis does not include the full build out of the Bull Creek and 45<sup>th</sup> street intersection. It is our understanding that this intersection will be fully built out prior to completion Phase 1 of the development. We recommend that the Applicant confirm that this intersection will be constructed at the completion Phase 1 of the development.
2. It is unclear from the information contained in the TIA as to when the concrete safety barrier is constructed along Bull Creek Road in association with the bike lane. In addition, it is our understanding that the Applicant will be installing this barrier when Bull Creek Road is reconstructed to provide the other proposed improvements.
3. **Repeat comment ATD7** - It appears from the information provided in the TIA that 14% of the site generated volumes will use Jackson Street. This site generated traffic will more than double the total traffic volume on Jackson Street. However, it does not appear that mitigation has been proposed along Jackson Street to address this increase in traffic. We recommend that the Applicant develop mitigation measures to address this issue.
4. The TIA indicates as part of the transit assumptions that in order for the allowed 5% transit reduction to be appropriate, bus headways need to be decreased from one hour to 10 minutes. It is unclear however if the Applicant has discussed this reduction in headway with Cap Metro. We recommend that the Applicant work with Cap Metro to achieve the necessary reduction in bus headways for the 5% reduction to be allowed. If this is not attainable, the analysis will need to be revised for the higher number of trips.



Bull Creek Road/45<sup>th</sup> Street Intersection Plan – Option 1: - Not recommended

1. This option, as presented creates safety concerns by shifting the northbound through traffic approximately nine (9) feet.

Bull Creek Road/45<sup>th</sup> Street Intersection Plan – Option 2: - preferred option

1. We recommend that the small grass panels on the northwest, northeast and southeast corners be eliminated to allow for wider sidewalks and the placement of traffic signal equipment. In addition, the sidewalk easement that the Applicant has indicated needs to allow for the installation of traffic signal equipment.

Bull Creek Road Improvements Plan (comments start at the north and head south):

1. The PHB, crosswalks and landings are not shown at Driveway 1. Please show this information.
2. The traffic signal, crosswalks and landings are not shown at Driveway 2/Jackson Street. In addition, no information is shown on Jackson Street related to length of turn lanes and tapers. Please show this information.
3. The pedestrian refuge island shown at Driveway 4 does not appear to have offsets to the travel lanes provided. We recommend that one foot (1') minimum offsets be provided.
4. The PHB, crosswalks and landings are not shown at Driveway 4. Please show this information.
5. The 167' lane taper south of Driveway 4 appears to be too short. In addition, it is unclear how the improvements south of Driveway 4 will match the existing conditions, including how the existing northbound bicycle lane will transition onto the multi-use path. Please show this information.



**Date:** March 25, 2016

**To:** Brian Williams, P.E. Brown & Gay, Engineering  
James Schwerdtfeger, P.E., Big Red Dog Engineering

**CC:** Sherri Sirwaitis, Case Manager

**Reference:** Bull Creek Parcel (aka “The Grove at Shoal Creek”)  
CD – 2015 – 0009

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Staff from the City of Austin Development Services and Transportation Departments have reviewed the revised Traffic Impact Analysis for the Bull Creek Parcel development proposal (hereafter called “The Grove”) and offer the following comments:

#### **GENERAL COMMENTS**

- A. Written approval from the Texas Department of Transportation (TxDOT) of the proposed Traffic Phasing Agreement is required for the proposed PUD as various state-maintained roadways are bordering the PUD area.
- B. Pedestrian crossings should be identified and paired with the (proposed) location of transit stops. Provide map showing location(s) of transit stops (current and proposed). The TIA allows for a 5% transit reduction, assuming bus headways are decreased from current service levels. Applicant to provide final written confirmation from CapMetro that current and future services levels on Bull Creek Road will support the 5% transit reduction as presented in the TIA prior to final Council approval.
- C. Comment cleared.

Development Services (Bryan Golden/Scott A. James):

**DSD1. Update 1** – After interdepartmental discussion, the proposed development shall dedicate Jackson Avenue as a public roadway to the City of Austin. As agreed by the applicant, Lot 43, Shoal Village Section 2, shall be dedicated as public right-of-way to the City of Austin for the extension of Jackson Avenue to 45th Street. Vehicular access at the intersection of 45th Street and Jackson Avenue shall be limited to “right-in, right-out only.” Staff will review roadway design plans submitted by the Applicant as part of the subdivision and site development permit



process. A pedestrian hybrid beacon may be installed at the intersection of Jackson Avenue and 45th Street to facilitate pedestrian crossings across 45th Street. The timing of the installation of the pedestrian hybrid beacon shall be determined by the Austin Transportation Department.

DSD2. Comment cleared.

DSD3. **Update 1** - Project will be built in two phases: for initial 2018 build conditions (Phase 1), the improvement of the Bull Creek Road/45<sup>th</sup> Street intersection is required. The phase one improvements shall be inclusive of the following elements: dedication of right-of-way, bicycle lanes, medians, turn lanes, sidewalks, and trails. The details of the phasing and timing of the specific improvements will be finalized with the Traffic Phasing Agreement that accompanies the final PUD Ordinance per the comment below as DSD5. NOTE: TxDOT agreement of the terms of fiscal participation for off-site improvements is required.

DSD4. **Repeat comment** - 2024 build conditions (Phase 2) will include full width reconstruction of Bull Creek Road and improvements to Jackson Avenue. In accordance with ATD TIA Comment 3, the improvements to Jackson Avenue will be identified and addressed at the time of the warrant study to support the signalization of Jackson Avenue and Bull Creek Road.

DSD5. **Repeat comment** - Please provide a draft Traffic Phasing Agreement that clearly outlines the traffic improvements to be built for each phase of the development. NOTE: the traffic phasing agreement will require the approval from the COA Legal Department.

DSD6. Jackson Avenue should be extended to the north through the site from its intersection with Bull Creek Road to 45th Street as a public street, provided the following:

- The City approves the street design sections for the northern extension of Jackson Avenue in lieu of standard City street sections, as shown in the Design Guidelines; and
- The City agrees to provide code modifications to allow the Jackson Avenue right-of-way to be included in site calculations and to allow property on both sides of the northern extension of Jackson Avenue to be included in a single site. DSD and PAZ will determine how this provision is incorporated into the final PUD Ordinance.

DSD7. Other roadways in the project may be private roadways, provided the following:

- Public access and utility easements are provided for the entirety of the private street lengths, granting control to the City of Austin of all traffic elements for intersections between public right-of-way and any private streets/driveways within the development;

- Retail Streets, Green Streets, and Connector Streets shall be designed to include 50 feet minimum tangent for intersection approaches and a 100 feet minimum centerline radius for horizontal curves. Horizontal design geometry for these streets may be varied with approval of the Director.

DSD8. A note will be provided on the Land Use Plan and/ or a provision of the PUD ordinance will be provided stating the following:

The Applicant will post fiscal with the City of Austin for the construction of a bicycle and pedestrian bridge crossing Shoal Creek enabling a trail connection from the site to Shoal Creek Blvd. The amount of the fiscal shall be based on the Applicant's approved engineering cost estimate. Subject to City approval of the proposed bridge location (the City considering environmental, connectivity and other factors) the Applicant will construct the bridge and trail. If the City of Austin or the applicant is unable to secure an easement to allow for the construction of said bridge, the posted fiscal may be utilized by the City to complete other bicycle and pedestrian improvements in the area. The Applicant further agrees to provide easements for future bicycle and pedestrian bridge crossings at both the northern and southern portions of Shoal Creek, whether or not the bridge described above is constructed.

Austin Transportation Department:

For the proposed intersection of 45th Street/ Bull Creek Road:

- ATD1. Comment cleared per Option 2 diagram provided.
- ATD2. Comment cleared per Option 2 diagram provided.
- ATD3. Comment cleared per Option 2 diagram provided.
- ATD4. Comment cleared per Option 2 diagram provided.
- ATD5. Comment cleared per Option 2 diagram provided.
- ATD6. Comment cleared.
- ATD7. Repeat comment - Projected volumes onto Jackson Avenue require mitigation measures along Jackson Avenue.
- ATD8. Comment cleared.
- ATD9. Comment cleared per Bull Creek Road diagram provided.
- ATD10. Comment cleared.

ATD11. Comment cleared.

ATD12. Comment cleared per Option 2 diagram provided.

ATD13. Comment cleared per Option 2 diagram provided.

ATD14. Comment cleared per Option 2 diagram provided.

ATD15. Comment cleared per Option 2 diagram provided.

ATD16. Comment cleared per Option 2 diagram provided.

ATD17. Comment cleared per Bull Creek Road diagram provided.

General Comment

Additional comments from ATD are provided in the attachment. Staff reserves the right to conduct further review of the subject application with regard to geometric constraints that may arise due to inadequate or unavailable right-of-way that may affect the operational objectives of proposed infrastructure improvements. These elements may affect site plan review and approval, as they are considered integral to the viability of the subject development as proposed.

We thank you for the revised TIA submitted in support of this PUD application. City staff will continue to review elements of the proposal and the related Traffic Phasing Agreement. If you have any questions please feel free to contact me or Bryan Golden at (512) 974-3124.

A handwritten signature in black ink, appearing to be 'AL' followed by a long horizontal stroke.

Andrew Linseisen, P.E.  
Managing Engineer  
Division Manager, Land Use Review Division  
Development Services Department

Attachment



# MEMORANDUM REVISED

To: Jeff Howard  
McLean & Howard, LLP

Date: June 28, 2016

Project: The Grove At Shoal  
Creek

CC: Andrew Linseisen, P.E.  
Development Services Department

Sherri Serwaitis  
Planning and Zoning Department

From: Austin Transportation Department

Re: Review Comments

The Austin Transportation Department has reviewed the March 28, 2016 (received June 16, 2016) traffic report regarding the *"The Grove at Shoal Creek, Traffic Impact Analysis"*, prepared by R-K Traffic Engineering, LLC. The proposal calls for constructing 110 Single Family Homes, a 600 unit apartment building, 425 condo/townhouse dwelling units, a 600 room congregate care facility, 225,000 SF of office, 55,000 SF of shopping center, a 35,000 SF supermarket, plus additional uses. The development would be constructed between Bull Creek Road, Shoal Creek and 45<sup>th</sup> street. The following comments summarize our review findings:

## **Unresolved Traffic Impact Analysis (TIA) Comments**

### **Analysis Comments**

1. The 2018 analysis, as presented in the TIA, does not include the following:

- Full build out of the Bull Creek Road and West 45th Street intersection
- The improvements at the Bull Creek Road/Driveway 1 intersection
- The improvements at the Bull Creek Road/Jackson Avenue intersection
- The improvements at the Mopac/45<sup>th</sup> Street intersection
- The improvements at driveways 2 through 5 along Bull Creek Road

This analysis was however included in the 2024 analysis. Based on the information provided in the current revision of the TIA, ATD understands that these intersection improvements will be fully built out prior to completion of Phase 1 of the development (see other comments below). Please clarify if otherwise.

2. **Repeat Comment ATD7 from March 2016:** It appears from the information provided in the TIA that 14% of the site generated volumes will use Jackson



Avenue. This site generated traffic will significantly increase traffic volume on Jackson Avenue. However, mitigation has not been proposed along Jackson Avenue to address this increase in traffic. We recommend that when a signal warrant study is conducted by the Applicant for the signal at Jackson Avenue and Bull Creek Road, the Applicant also study Jackson Avenue to determine whether mitigation is needed address the increase in traffic.

### **Geometric Comments**

The Applicant will include design plans addressing these geometric comments, and those addressed by the ATD memorandum dated March 28, 2016 as part of the site plans:

#### **Bull Creek Road/West 45th Street Intersection Plan – Preferred Option 2:**

1. ATD had conceptually accepted the concept plan (Option 2) at the intersection of 45 Street/ Bull Creek Road, submitted by the Applicant, dated December 15, 2015 (as per Transmittal, dated March 25, 2016).

ATD recommends that acquisition of all necessary ROW (as proposed in the Plan – Option 2 submitted by the Applicant) and construction of the intersection at 45 Street / Bull Creek Road according to the plan be one of the conditions of approval of the PUD.

ATD also recommends that the Applicant provide documentation that this, and all other ROW, has been obtained to allow construction of the proposed improvements at this location as proposed.

2. The northbound right turn is too narrow to allow for a WB-50 design vehicle to make the turn. The lane should be widened by shifting the outermost curb and not the island curb line.
3. The northern curb face of the pork-chop island must be offset by two (2) feet from the travel lane for eastbound traffic.
4. On the eastbound approach, the 100 feet approach taper is insufficient in length. The taper should be lengthened by narrowing the painted island.
5. The concept plan shows four (4) feet wide sidewalk on the northwest of the intersection along 45<sup>th</sup> Street. All sidewalks must be minimum five (5) feet wide.

#### **Bull Creek Road Improvements Plan (comments start at the north and head south):**

1. It is unclear at this time if sufficient ROW will be obtained for the proposed improvements along Bull Creek Road. In addition, since there are a number of comments regarding the proposed design along Bull Creek Road, it is unclear if





the total ROW needed has been adequately identified, particularly at the PHB locations and the traffic signal at Jackson Avenue. If this ROW is not obtained there is concern that the proposed improvements along Bull Creek Road will not be able to be constructed.

ATD requests that the Applicant provide verification that the required ROW along Bull Creek Road, has been dedicated/obtained to allow construction of the proposed improvements at this location as proposed.

2. Tapers shown between the back-to-back turn lanes are insufficient in length. A single taper between the two turn lanes should be provided.
3. The PHB, crosswalks and landings are not shown at Driveway 1. Please show this information.
4. The 185 feet taper on the northbound left turn approach to Jackson Avenue is insufficient in length. Lengthen the taper and narrow the painted island.
5. The traffic signal, crosswalks and landings are not shown at Driveway 2/Jackson Avenue. In addition, no information is presented on Jackson Avenue related to length of turn lanes and tapers. Please present this information.
6. Between Driveway 5 and Driveway 4, the Applicant is proposing a 10-foot wide southbound lane, 11-foot wide lane northbound with a 9-foot wide shoulder. ATD recommends that the Applicant provide 10-foot wide travel lanes including a center two-way left-turn lane.
7. The pedestrian refuge island shown at Driveway 4 does not appear to have offsets to the travel lanes as provided. We recommend that one foot (1') minimum offsets be provided.
8. The PHB, crosswalks and landings are not presented at Driveway 4 in the concept plan. Please present this information.
9. The 167' lane taper south of Driveway 4 appears to be too short. In addition, it is unclear how the improvements south of Driveway 4 will match the existing conditions, including how the existing northbound bicycle lane will transition onto the multi-use path. Please present this information.
10. It is unclear from the information contained in the TIA as to when the concrete safety barrier for the bicycle lane will be constructed along Bull Creek Road. The Applicant has indicated in conversations with ATD that the barrier will be installed when Bull Creek Road is reconstructed to provide the other proposed improvements listed in the TIA. The Applicant will include design plans of this barrier installation with the site plans for the development.



### **Vehicular Connection to 45<sup>th</sup> Street from Jackson Avenue Extension**

1. The Applicant provided traffic analysis for this proposed connection and included it in Appendix J of the TIA. However, the applicant didn't model full connection of Jackson Avenue from Bull Creek Road to 45<sup>th</sup> Street in Synchro. Also the TIA did not document how the diversion of the site trips and additional diverted trips (if any) were determined. We recommend that the Applicant review and provide justification of the diverted site trips and any additional diverted trips.
2. The site plan must include the proposed layout and cross section for the Jackson Avenue Extension from Bull Creek Road to West 45<sup>th</sup> Street. At the connection to West 45<sup>th</sup> Street, the cross section of Jackson Avenue should be wide enough to accommodate emergency vehicles. Bicycles and pedestrians should be accommodated as part of the complete streets policy.
3. Since no internal plans have been provided for the Jackson Avenue Extension from Bull Creek Road to 45<sup>th</sup> Street, we recommend that as part of the site plans for the development this roadway (called a driveway in the TIA) be designed such that a consistent cross-section, with bike lanes and sidewalks is provided between Bull Creek Road and 45<sup>th</sup> Street. In addition, we recommend that the design speed of this new roadway connection be 30 mph.
4. It is Austin Transportation Department's understanding that the Jackson Avenue Extension connection from Bull Creek Road to 45<sup>th</sup> Street shall be fully funded by the Applicant, including the PHB, as part of the improvements during the implementation of the 2018 improvements.
5. The Austin Transportation Department understands that the Applicant has purchased 2627 45<sup>th</sup> Street for ROW and additional ROW is being pursued along 45<sup>th</sup> Street which will be provided for this connection. Austin Transportation Department also understands that movements at this "new" intersection will be restricted to right in/right out only. Plans will need to show how turning movements will be restricted and which design vehicles can be accommodated. ATD requests that the applicant submit plans presenting these details at this proposed connection. If the additional ROW is not obtained we recommend that this access be limited to right-out only.



6. Advisory Comment: ATD had significant comments on the preliminary plan(s) previously submitted for this proposed new access (please submit plans as per comments 2, 3, and 4 above). The comments on the previously submitted plans are as follow:
- The proposed splitter island is shown as 20.5' along 45<sup>th</sup> Street. This distance is insufficient to prevent vehicles from making an illegal left into the site or an illegal through movement from the site to Chiappero Trail. We recommend that the island be enlarged to prevent these movements.
  - The proposed splitter island is proposed to be constructed with type 1 mountable curb. We recommend that the island be constructed with non-mountable curb to prevent illegal movements.
  - The lanes on either side of the splitter island appear to be approximately 12'. We recommend that these lanes be widened to accommodate, at a minimum, a fire truck.
  - The Pedestrian Hybrid Beacon Signal on the west side of the proposed driveway is too close to the stop bar. This needs to be a minimum of 40' from the stop bar to allow for sight distance. We recommend that the design be modified to meet proper sight distance.

### **Development Phasing Comments**

- Based on the analysis presented in the TIA, all the improvements need to be constructed in 2018. The Applicant is requesting that these improvements be constructed when Phase 1 development reaches 2,000 vehicle trips per day. These improvements must be constructed when either the 110 single-family homes and half of the residential condominiums (188 units) or when all the residential condominiums (375 units) are complete. These intensities equate to the approximately 2,000 vehicle trips per day requested. It is our understanding that no construction on-site will occur beyond these units until all the improvements identified in the TIA for 2018 are complete. We recommend that these thresholds and restrictions be included in the Final TIA memorandum prepared by DSD and be one of the conditions of approval of the PUD.

Staff will conduct further review of the subject application with regard to geometric constraints that may arise due to inadequate or unavailable right-of-way that may affect the operational objectives of proposed infrastructure improvements. These elements may affect site plan review and approval as they are considered integral to the viability of the subject development as proposed.