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19 March 2021

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Dear Aaron

RE: REQUEST FOR FURTHER INFORMATION - PROPOSED PLAN CHANGE, PARK ESTATE ROAD

Further to your instruction, we have reviewed the RFI received from Auckland Council for the proposed Plan Change at Park Estate Road as well as the additional comments received from Auckland Transport and have responded to these below.

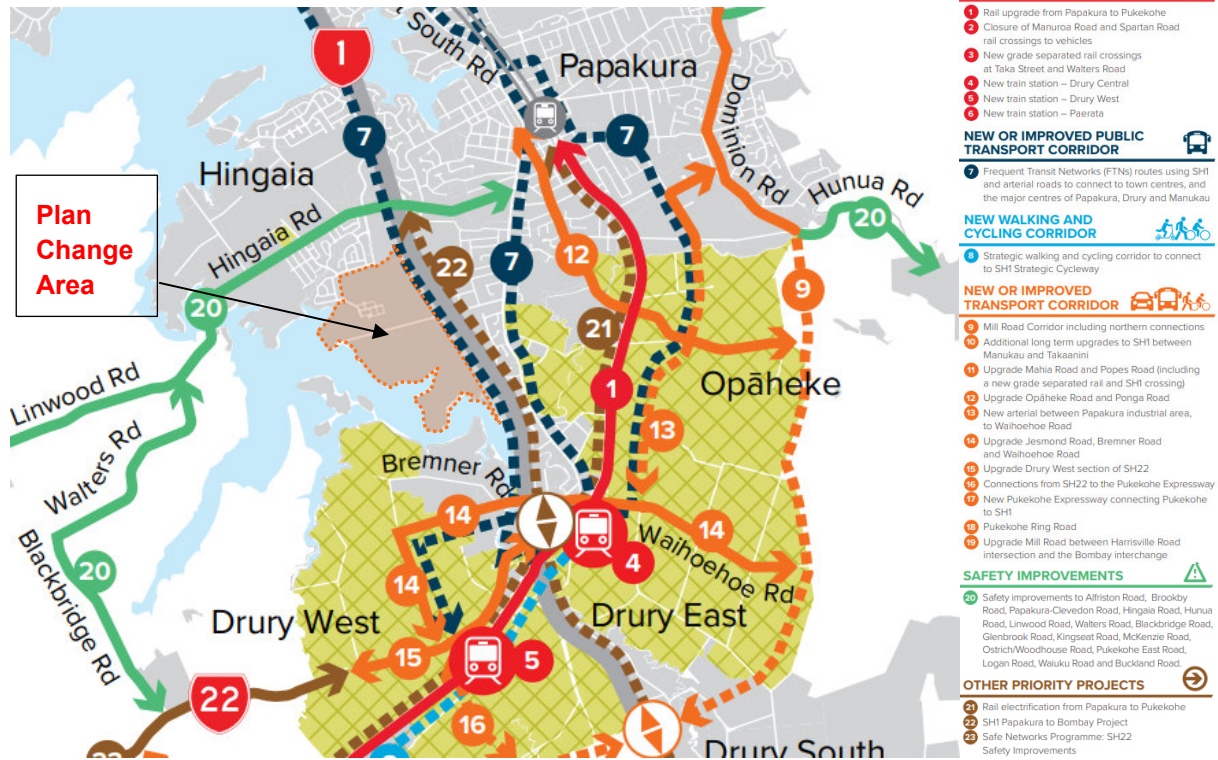
For ease each item is listed below as per the RFI document and Auckland Transport assessment feedback.

Request for Further Information

Item 46: *The Strategic Context included in Commute's Transport Assessment Report (TAR) dated 5 November 2020 does not make reference to the 'Supporting Growth' initiative or Auckland Transport Alignment Project (ATAP), under which a number of potential future transport improvements are being proposed within the wider South Auckland sub region to support future growth. While the funding and timing of some of these improvements may still be subject to uncertainty, it is important to understand their influence and significance in the context of the Proposed Plan Change on the subject site. Can you please include these two transport projects in the TAR.*

Commute Response: The location of the plan change area within the Supporting Growth South Auckland indicative strategic transport network can be seen in Figure 1 below.

Figure 1: Supporting Growth: Southern Auckland Indicative strategic transport network in proposed Plan Change vicinity



Three of the projects shown in the supporting growth strategic network either run adjacent to the Plan Change area or can be considered to have an impact on it. These are:

- 7 – New or improved public transport corridor. Frequent Transit Networks (FTNs) routes using SH1 and arterial roads to connect to town centres, and the major centres of Papakura, Drury and Manukau. These will bring better public transport connections and improved accessibility to the Plan Change area.
- 20 – Safety Improvements to Hingaia Road. The exact improvements will vary along the length of Hingaia Road with some having already been undertaken by Auckland Transport.
- 22 – The State Highway 1 Papakura to Bombay Project, this is an NZTA lead project which is aimed at increasing capacity due to accommodate growth in the south it will incorporate new traffic lanes, bus shoulder lanes, walking and cycling paths and require the replacement of a number of bridges including the Park Estate Road bridge which is to be replaced and raised to provide for additional lanes underneath, improved vehicle clearance and walking and cycling paths. This will improve access to the east from the Plan Change area once complete. This project is scheduled to be completed by 2024.

ATAP outlines the direction for transport investment in Auckland (2021 – 2031) with an emphasis on public transport (especially rapid transit), walking and cycling, improving safety and broader environmental, health and urban growth outcomes.

- Currently the only identified ATAP project that passes near the site is the widening of State Highway 1 between Papakura and Drury, this does not have a direct impact on the site although it will assist in wider network travel times to / from the site by providing increased capacity.
- A large part of ATAP is directed at improving connectivity via rapid transport and in the south this primarily focuses on improvements to the rail network, in particular south of the Papakura Station which is some 3.5km from the site.

- No specific walking and cycling projects are identified near the site, with ATAP mostly focusing on major projects across the city.

As ATAP is a joint initiative with the government it tends to focus on the larger projects throughout Auckland. There are no projects specific to the Hingaia Precinct however some of the larger projects like improving capacity on the southern motorway and improving public transport corridors will provide for an overall improvement in the area.

Item 47: *While modelling data referenced in Flow's Transport Update Report dated August 2018 may take account of future growth assumptions and associated transport improvements which remain valid, it would be useful for these to be confirmed in the TAR. Please confirm this modelling assessment is in the TAR.*

Commute Response: As Flows model update was undertaken just over two years ago based on the (at the time) more conservative SEM I9¹ scenario and is for the years 2031 and 2036 the results generated by this are considered to remain valid. It includes for the full build (all residential and commercial development) of Hingaia, as well as all of the future proposed roading connections and intersection upgrades included in the 2014 Transport Assessment. In addition, there have been no significant changes in the area, both in terms of proposed development intensity and existing road network that are likely to have affected the results, as such it is considered that future growth including proposed densities within the Precinct are still adequately provided for.

Item 48: *The TAR refers to previous Transport Assessment work having been undertaken, including a report by Opus which establishes triggers for transportation improvements, based on traffic volumes and numbers of households developed. However, Commute's TA does not elaborate on these triggers. It is important to understand the need for transportation improvements in the context of the currently Proposed Plan Change and its revised dwelling yield, including an indicative overview of improvements required upon completion of particular numbers of dwellings. Can you please complete this assessment.*

Commute Response: The report prepared by Opus considered triggers for the required upgrades across Hingaia. This was developed assuming a full build across Hingaia. It was also based on a 1,500 dwelling expected residential yield on the Hugh Green site and has not been updated following the revised aspirational build out yield for Hugh Green for 2,300 dwellings which was subsequently modelled in August 2018 by Flow. However, the 'vehicle per hour' and 'household' triggers provided for individual intersection approaches are still considered relevant as these are not affected by numbers of dwellings proposed.

Both the Flow and Opus reports identified the following required upgrades, with the triggers listed coming from the Opus report:

¹ When compared to SEM I11

Table 1: Future upgrades identified as a part of network models undertaken for the area and (where relevant) their triggers

Road	Upgrade	Triggers	Notes
Park Estate Road	Widening	To local road standard – as soon as any increase in hh To collector road standard – 450 hh or as function changes	Upgrades already constructed.
Park Estate Road / Hinau Road Intersection	Signalisation	Triggered by 345 vph on Park Estate Rd west of the intersection and 600 vph RT from south or 1,380 hh to the north west of the intersection and 1,500 hh to the south.	Allowance made in EPA for Park Estate / Hinau Road intersection for an interim solution which utilises a roundabout as per ATs preference and due to uncertainty in timing of Hinau Road connection here.
Great South Road / Park Estate Road Intersection	Flush median with right turn bay on Great South Road	-	Already constructed
	Signalisation	Triggered by 418 vph additional on Park Estate Road approach, or 1,366 additional households	Listed in the RLTP.
Hingaia Road / Harbourside Drive Intersection	Dual right turn from south	Triggered by 318 hh (270 vph to the south) increase within Hingaia SHA south of intersection or 715 hh (608 vph) increase in Hingaia SHA globally	Upgrades already constructed
	Full upgrade	1,072 hh increase in Hingaia (or 1,609 hh increase in Hingaia if LOS E accepted on Hingaia Rd Right)	
Hingaia Road / Kuhanui Drive Intersection	Signalisation	49 hh increase from south and 140 hh increase from north	Already constructed
Hingaia Road / Oakland Road Intersection	Signalisation as T-intersection	718 hh on Oakland Road	T intersection proposed, but not yet completed.
	Signalisation (4-arm intersection)	576 hh on Oakland Road (with very low hh on southern approach) or 668 hh in Hingaia SHA split between south and north of the intersection	
Park Estate Road / Kuhanui Drive Intersection	Signalisation	Not required with expected traffic volumes	Signalisation completed.
Hinau Road extension	New route	2,127 hh in Hingaia SHA (54% of development that use Kuhanui Drive as an alternative route)	
Hingaia Road Widening at Kuhanui Drive	4 laning	1,295 hh increase in Hingaia SHA	Completed between Kuhanui Drive and Hinau Road
Hingaia Road Widening at Oakland Road	4 laning	1,532 hh within Hingaia SHA (1483 to south and north of Hingaia and 5% growth of Hingaia Rd traffic) or 890 hh on south and north with 100% increase of Hingaia Rd traffic	Not yet completed but incorporated in proposed Hingaia Road / Oakland Road intersection layout

The triggers in the table above are expected to remain the same with the revised yield for the Hugh Green land.

In addition to the above, the latest Flow modelling (August 2018) also considered the following intersections, which were not a part of the 2014 modelling.

- Beach Road / Elliot Street / Chichester Drive intersection
- Park Estate Road / new local road (between SH1 overbridge and Hinau Road)

LOS D and F are predicted for the Beach Road / Elliot Street / Chichester Drive intersection in both the 1,500 du and 2,300 du scenarios. It is noted that only slight increases in traffic are anticipated at the intersection as a result of the 2,300 du scenario due to a minor increase in traffic here as a result of the intersection. The poor performance is an underlying issue here. At this stage no upgrade works are proposed or identified in either the Flow or Opus reports for this intersection.

The 2018 model for the Park Estate Road / new local road intersection (for the 2,300 du scenario) identified that a priority controlled intersection here would operate as LOS F in the AM peak for vehicles turning right onto Park Estate Road. The Flow report identified that consideration was required to improvements in this location. EPA for this intersection has already been granted for a priority intersection (with the design enabling a future roundabout) and construction is currently underway.

Commute Response:

Item 53: *The TAR Report does not discuss the potential impact of the Proposed Plan Change upon safety across the wider road network. It is noted that the future volumes of traffic associated with the development of the subject site would be expected to contribute to an increased collective safety risk on the adjoining road network, as well as potential congestion and operational issues. Can you please undertake an assessment of the road safety effects associated with traffic generated by the proposed plan change.*

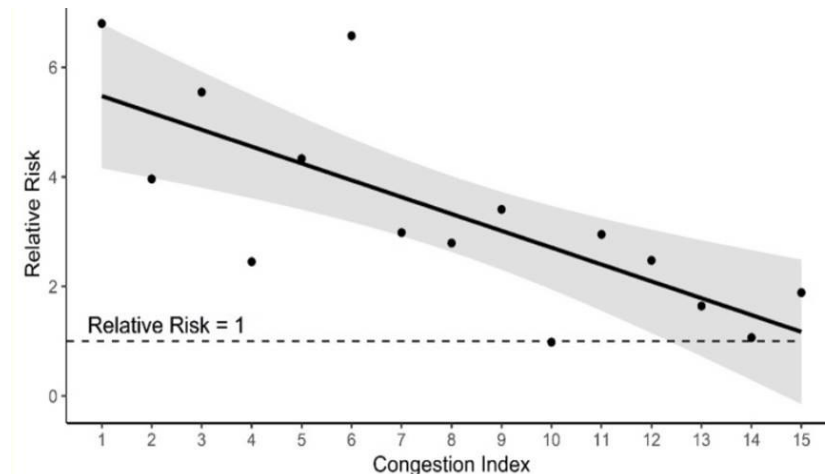
Commute Response: It is expected that the proposed Plan Change will generate an additional 136 vehicle trips in the peak hour or 1,440 vehicle trips per day when compared to 1,226 vph in the peak and 13,500 vpd for the baseline 1,500 du scenario (this is a 10% increase). The nature of the development, and layout of the road network means that these trips will be dispersed across the internal network, with most travelling either across or on parts of Park Estate Road to gain access to the wider network. As such any potential safety, congestion or operational effects will also be dispersed on the wider network and are not likely to be significantly different from that already provided for.

Under the 1,500 du scenario, the Flow report indicates that in 2031 Park Estate Road is expected to carry up to 530 vph in the peak and 11,000 vpd. Using this as a baseline in NZTAs *Monetised Benefits and Costs Manual*² the overall increase in injury crashes per year on Park Estate Road as a result of the proposal is expected to be 0.096 (ie. one additional injury crash every 11 years). Thus it can be seen that the actual impact on Park Estate Road with regards to crashes as a result of the proposal is not significant.

In addition to this, typically the relative risk per person across the network decreases with congestion. Thus across the wider network the relative risk per person is expected to either

² Crash Estimation Compendium, New Zealand crash risk factors guideline 2018

remain the same or decreases slightly as congestion increases. This is illustrated in the graph³ below.



Item 54: *As noted in previous email correspondence, the applicant does not appear to have provided information in relation to expected traffic flows on local roads serving the precinct area. We would thus recommend that this information is provided.*

Commute Response: Until more detailed design is carried out in terms of final lot layouts and access points within the precinct the likely traffic flows on the local roads are difficult to predict. However, it is expected that most local roads will carry no more than 1,000-2,000 vehicles per day depending on their location within the network this is something that is able to be refined during the more detailed design stages.

Appendix 2 – AT Transport assessment feedback

General comment: *The TA needs to refer to the network upgrades that are being implemented to mitigate traffic effects identified by Flow in their 2018 modelling report, with particular regard to the Hingaia Road/Harbourside Drive/Beach Road/Hinau Road Intersection and Beach Road/Elliot Street/Chichester Drive Intersections.*

Commute Response: The Flow modelling report and Opus staging analysis identified upgrades for the Hingaia Road / Harbourside Drive / Beach Road / Hinau Road Intersection that includes the provision of two right turn out lanes for Hinau Road and full signalisation of the intersection. The signalisation and right turn bays have already been undertaken. Of note the Flow report shows a slightly different final signals layout than what is currently in place. This includes additional right turn in and left turn out lanes from Harbourside Drive as well as signalling the left turn in lane to Harbourside Drive and providing an additional exit lane on Beach Road.

The layout of the existing signalised intersection and the one included in Flows model report is shown below.

³ [Angus Eugene Retallack](#) and [Bertram Ostendorf](#), 2020. Relationship Between Traffic Volume and Accident Frequency at Intersections

Figure 2: Existing layout

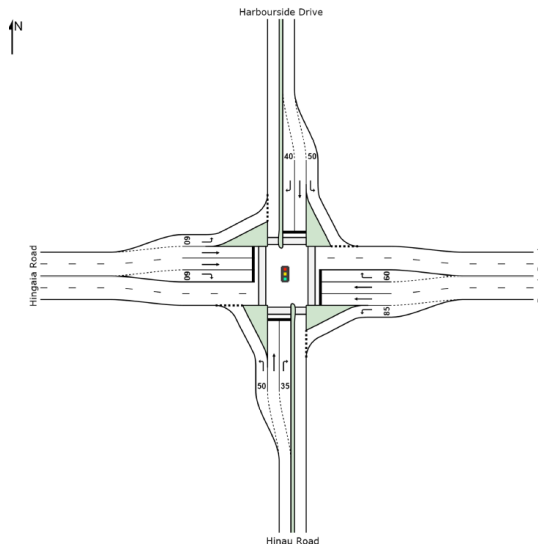
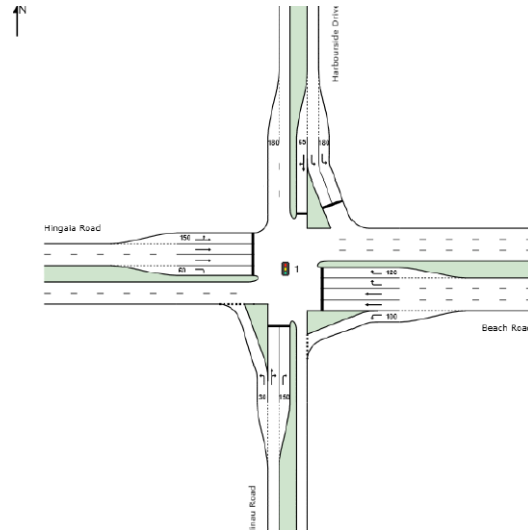


Figure 3: Modelled Flow layout



The 2018 Flow modelling report found that the increase in traffic at the Beach Road / Elliot Street / Chichester Drive Intersection as a result of the 2,300 dwelling scenario only resulted in a slight increase in traffic predicted at the intersection (when compared to the 1,500 dwelling scenario previously assessed for the Hugh Green land). In the 2031 AM the intersection continued to operate at LOS D and in the PM the intersection continued to operate at LOS F. As such no specific upgrades have been identified for this intersection as a part of the Hingaia Precinct developments.

Additional network upgrades to be implemented (including a number which have already been carried out) as a result of the precinct are listed in the 'Hingaia Special Housing Areas, Staging Analysis of Transport Infrastructure Improvements' report prepared by Opus International Consultants in July 2015 attached at the back of this response.

General comment: *Further clarification is required around the reference to network upgrade triggers identified in the Opus report referenced in the Transport Assessment and whether this is referring to the 'Hingaia Special Housing Areas, Staging Analysis of Transport Infrastructure Improvements, Opus International Consultants, July 2015'.*

Commuter Response: Correct this is the specific Opus document which discusses triggers for the network upgrades. This was not updated following the recent August 2018 model update by Flow however an update was not considered necessary as upgrades are based on vehicle and dwelling numbers which remain suitable. For reference a list of the upgrades identified is provided above in response to a previous request.

It is understood that this document has been included as an appendix to the overall RFI response put together by CivilPlan.

General comment: *The TA needs to incorporate the Hingaia masterplan as part of the assessment. This includes the proposed transport network developed through the master planning process and any information on the street layout and design to provide further explanation of the internal road network servicing the precinct e.g. circulation, characteristics of the internal roads.*

Commuter Response: The exact layout of the internal road network south of Park Estate Road (where the proposed zone changes are located) is yet to be determined and will be done so

during later design stages. However indicative roading alignments and characteristics can be seen in the masterplan prepared by Transurban and included as an appendix to the overall RFI response put together by CivilPlan.

Public transport / walking and cycling: *The existing and future walking and cycling networks in terms of the network connections, paths, links, crossing facilities, etc needs to be considered. Confirmation is required that the expected traffic volumes on the network will safely accommodate walking and cycling.*

Commute Response: Appropriate walking and cycling measures will be incorporated during later design stages to ensure they connect appropriately with those already provided within the Precinct as well as are suitable for the expected road environment based on traffic volumes, lot layouts and connectivity across the network.

Transport Modelling (Flow modelling report 2018)

Item 1: *Hingaia Road/Harbourside Drive/Beach Road/Hinau Road Intersection - Extract from Flow report 2018:*

Based on the existing layout of Beach Road, the predicted queues will extend to the Beach Road/SH1 northbound ramps intersection for the 1,500 dwelling scenario.... We note that the SIDRA models used in this assessment are isolated intersection models. Some further investigation using SIDRA network may provide a better representation of queues through a corridor with closely spaced signalised intersections, as a result of signal coordination. We recommend that HGG's consultants consider this in their transport assessment.

Auckland Transport Response:

FLOW has reported that a development of 1500 dwellings (Commute TA proposes 1660) could cause an issue with the operation of the SH1 interchange in the PM peak hour. AT seeks that further modelling be undertaken at this interchange to better understand the traffic effects.

Commute Response: Interrogation of the sidra outputs from the 2018 and 2014 Flow reports which give results at the Harbourside Drive / Hinau Road / Hingaia Road / Beach Road Road intersection for the 1,500 and 2,300 du HGG scenarios shows that there is very little change in volume between the two scenarios for most movements. Assuming a similar distribution of vehicle trips across the network these movement flows have been interpolated to provide PM peak hour volumes at the intersection for the 1,660 du scenario proposed. This is shown and tabulated in the Table below.

Road / movement	Volumes (FLOW scenarios)			Equivalent volume change between 1,500 and 1,660 du scenarios	Estimated volumes 1,660 du scenario	
	2,300 du ⁴	1,500 du ⁵	% change			
Beach Road	RT	606	640	- 5.6%	-6.8	633
	TH	1,722	1,819	- 5.6%	-19.4	1,800
	LT	563	474	15.8%	17.8	492
Hinau Road	RT	405	356	12.1%	9.8	366
	TH	84	69	17.9%	3	72
	LT	7	1	85.7%	1.2	2
Hingaia Road	RT	1	1	0%	0	1
	TH	1,118	1,122	- 0.4%	-0.8	1,121
	LT	50	54	- 8%	-0.8	53
Harbourside Drive	RT	67	74	- 10.5%	-1.4	73
	TH	83	77	7.2%	1.2	78
	LT	515	524	- 1.8%	-1.8	522

It can be seen that the change in traffic on the Harbourside Drive, Hinau Road and Hingaia Drive approaches is very minimal in comparison to the volumes each already carries (2 – 14 additional vehicles for each approach). Whilst the left turn for the Beach Road approach increases by some 18 trips, the through and right turn movements reduce and the Beach Road approach actually has a net reduction in traffic when comparing the 1,500 du and 1,660 du scenarios. As a result the effects of the proposal are not considered to vary significantly from that reported by Flow for the 1,500 du scenario and it is considered that the limitations of the SIDRA modelling package would not enable these minor changes to be reflected. Further a SIDRA network analysis will generally report a better outcome for closely spaced intersections such as these. As such further modelling analysis here is not considered to be beneficial.

In addition the November 2014 report by Flow also discusses the Papakura interchange and gives predicted volumes here for the 1,500 du scenario in 2031. Comparing the flows on Beach Road for the 1,500 and 1,660 du scenarios shows the proposed increase in dwellings on the HGG land equates to an extra 8 vehicle trips eastbound and a decrease in 8 vehicle trips westbound in the PM peak. Once again this change in volumes as a result of the proposal is not expected to be noticeable on the operation of this intersection.

Item 2: Beach Road/Elliot Street/Chichester Drive Intersection

Auckland Transport Response:

Queues on the western approach at this intersection are predicted to extend to the Beach Road/SH1 northbound ramps intersection in the PM peak hour for the 1,500-dwelling scenario. Delays on the northern and eastern approaches are predicted to be over 5 minutes with queue lengths of 600 & 800 respectively.

⁴ From Flows August 2018 report

⁵ From Flows November 2014 report

The Hingaia Road/Harbourside Drive/Beach Road/Hinau Road Intersection and Beach Road/Elliot Street/Chichester Drive intersections should be incorporated with the SH1 interchange in a corridor model. This will provide a better understanding of how these intersections would likely operate in 2031.

Commute Response: Queueing and delay issues here are considered to be an underlying concern at this intersection in 2031. The modelling shows that the 2,300 du scenario provides an increase of 5% to queues and delays on the Beach Road E approach and 3% on the Elliot Street approach when compared to the 1,500 du scenario. Given that the proposal is for 1,660 du, some 80% less than the 2,300 du modelled in 2018 it is considered that any increase in delay or queues here as a result will easily fall within typical daily fluctuations at this intersection and be barely noticeable to commuters.

Wider network upgrades to arterial roads such as this with major connections to the SH network should be included as a part of Auckland Transport's background growth work.

Yours sincerely

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